ELECTRICAL WORLD

News Issue

APRIL 17, 1950 • OUR 76th YEAR

A McGRAW-HILL PUBLICATION

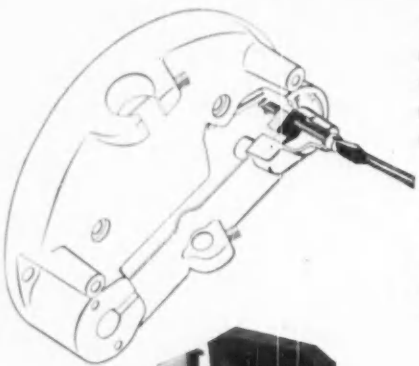
Charles P. Crane, President, Consolidated Gas, Electric Light & Power Co of Baltimore

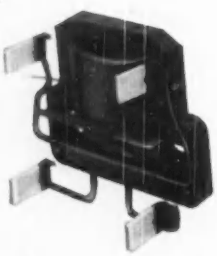
Hoover Line Damage Found Page 4

Year-End Prospects Brighten Page 70

Be thrifty—use the I-50

THERE'S LESS TO ADJUST!





A fraction of a dollar spent on watthour-meter adjustment—multiplied by the number of meters you own—can add up to a sizable unnecessary expense. With the I-50, exacting factory tests provide correct calibration, and unit construction assures that this calibration will be maintained. Here's how:

Permanent, stable characteristics reduce the need for service adjustments to extremely narrow limits. A refined micrometer adjustment provides all the range ever needed. Conventional meters, with more chances for error, require larger ranges and coarser adjustment.

Unlike conventional meters, no adjustments need be made for lagging power factor, thus none is provided for. The exclusive unit construction of the electromagnet—with all parts *permanently* fixed in place—makes a permanent factory adjustment of the lag plate possible.

time to retire . . . old watthour meters?

It may cost you more to keep an old watthour meter in service than to replace it with a modern I-50. Here are the reasons:

1. **LOSS IN REVENUE AT INCREASED LOADS**
2. **EXCESSIVE OPERATING EXPENSE**
3. **HIGH COST OF REBUILDING AND MODERNIZING**

Adopt the I-50—today's most modern meter—as your *standard*. It *earns* more—by accurate overload registrations. It *saves* more—by its design for fewer adjustments, less maintenance. Ask your G-E representative for full information. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

GENERAL ELECTRIC

601-55

The Electrical Week

Discovery of segment failures in the 287.5-kv Hoover Dam-Los Angeles transmission lines has prompted a thorough inspection and investigation to discover the cause. Blamed now is vibration which has increased as the conductors apparently have become more flexible with age (p 4) . . . A recent ruling by NLRB points out to utilities how if they are not careful they can easily violate the "free speech" clause of the Taft-Hartley Act (p 5) . . . Some 1,200 engineers and industry executives attended the Midwest Power Conference at Chicago. The extensive program covered just about every topic in which utility management and engineers are interested (p 11) . . . Another important meeting at Chicago was the EEI sales conference. The good news here was that utilities are doing more aggressive selling (p 12) . . . And business plans for new plant are being revised upward. The first quarter drop in capital spending was only 7.5% instead of the expected 14% (p 30).

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Natural gas transported by a 26-in. pipeline would generate about 32% more energy than will Grand Coulee Dam when all of its 18 generators are in operation, engineers of the Washington Public Service Commission have reported. The gas is to be piped in from Canada "within two or three years" under present plans.

Artificial lakes built by the Bureau of Reclamation will attract nearly 5 million vacationists this year, Interior estimates. Reclamation play areas last year brought 4,543,220 visitors.

Besides being troubled with census takers, housewives in Lake Placid, N. Y., will soon be troubled by radio inspectors. The city has passed an ordinance making electric-caused (radio) interference illegal if it "can be reasonably prevented by repairs, adjustments, or corrective appliances." All appliances in the city are to be checked to see if they cause any interference.

Sealed beam car headlights built into low posts and aimed in the direction of traffic are unusual features of Boston's $27-million new Mystic River Bridge. Lights are focused so that beams from opposite units converge on the roadways from 175 to 200 ft from their locations.

Additional peaking capacity is being considered for installation in a separate powerhouse at Coulee Dam, according to L. N. McClellan, chief engineer, USBR, in Denver. Such units would take advantage of the large storage capacity behind the dam to supply much-needed peaking power for the Northwest power pool.

Bureau of Reclamation critic Sheridan Downey has withdrawn from the California Senate race and won't be a candidate to succeed himself. But his retirement didn't clear the path for Rep Helen Gahagan Douglas, ardent supporter of federal power expansion. Downey threw his support to Los Angeles newspaper publisher Manchester Boddy.

After hearing federal officials urge that Kings River be included in the Central Valley project, the House Public Lands Committee recessed hearings until April 17. Then it will hear from foes of the move.

When REA Administrator Claude Wickard told the American Public Power Association that rural power rates in New York and New England were too high and going higher, he set a record for bad guessing. A few hours later Niagara Mohawk Power Corp, largest company in the area, announced a voluntary reduction in rural rates.

When neighbors complained about the barking coming from the Redondo Beach Plant of Southern California Edison Co, the company investigated and found three sea lions trapped in an underground pool of cooling water which connects with the ocean through a 1,100-ft conduit. A strainer in the outgoing conduit prevented their escape. The lions were in good health as plenty of fish make their way into the pool.

Notes From The News

Attempts to require underground construction of transmission lines within 25 miles of Boston have been defeated in the Massachusetts House . . . "Seapower," Puerto Rico's "floating powerhouse," will be towed to Rio de Janeiro, Brazil, this fall. No longer needed by Puerto Rico, it has been sold to the Brazilian Traction, Light & Power Co of Toronto, Canada . . . Virginia Electric & Power Co will install facilities for storing and burning heavy fuel oil because of "unsettled labor conditions in the coal industry" . . . Alabama Power Co is expanding its merchandising division and plans to resume full activities in the sale of appliances about May 1 . . . Around-the-clock concrete placing has begun at Hungry Horse Dam.

Segment Failures Spur Line Inspection

Studies Disclose Conductor in 287.5-Kv Hoover Dam-Los Angeles Lines Has Become More Flexible and Subject to Greater Vibration

THOROUGH INSPECTION of the 287.5-kv Hoover Dam-Los Angeles lines following discovery last November of the first segment failure has revealed seven others with inspection now 55% complete. Because the failures have been attributed to increased conductor vibration, the Los Angeles Department of Water and Power has under way a testing program to determine why conductor vibration is greater now than when the lines were erected 15 years ago. Steps to limit the vibration on these circuits are also being examined.

The first failure was discovered during a routine helicopter patrol. This failure was promoted by a bad come-along mark left on the conductor from the initial stringing operation; however, it was a vibration break and therefore prompted a thorough inspection of all the lines. Because of the high factor-of-safety in stringing tensions and careful patrol there have been no complete conductor failures.

The 325-mile lines cross plain, desert, and mountain and supply Los Angeles with 75% of its power requirements.

Conductor Economically Designed

Conductor used in the line is 1.4-in. diameter, type HH copper conductor of interlocking tongue and groove segmental construction (See illustration). With its smooth surface and hollow, self-supporting features, this conductor satisfied low corona-loss requirements without a premium in uneconomical copper cross-sectional area.

When design factors for the line were first being investigated, 1933-1938, elaborate conductor vibration tests were made at Stanford University, at General Cable Corp (manufacturer), at line locations, and at testing laboratories of the department.

At Stanford vibration was studied using a 50-ft sample of the conductor suspended in a wind tunnel. Delicate measurements of the amount of mechanical power required to vibrate the cable were made throughout the gamut of frequencies and amplitudes.

The department supplemented the Stanford tests with field and laboratory studies. A field installation was made near the line's present Silver Lake switching station, one of the locations most conducive to conductor vibration. Measurements of naturally-incited vibrations were made at this and at another line location. Photographic film recorders were used, and some 200,000 ft of film showing direct traces of conductor movement were obtained and analyzed during a two-year period. The relative occurrence of various vibration frequencies was determined as well as the maximum and normal amplitudes at each of these frequencies that could be expected to occur in a 50-year period.

High Amplitude Vibration Tested

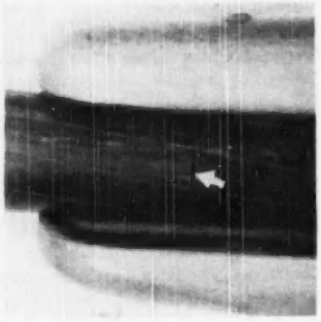
In a series of laboratory tests by the department, cable samples were forced mechanically to vibrate to much higher amplitudes than were found in the field tests. Vibration at these high amplitudes was continued until failure occurred.

These field and laboratory data produced curves showing cycles of bending required for failure and cycles of bending experienced in the field extrapolated to cover a 50-year period (See chart). From these curves a comparison of what the cable could stand with what it might be expected to stand was possible. This comparison indicated that the possibility of cable failure from naturally incited vibration was remote and that there was ample factor-of-safety against failure in the 50-year period.

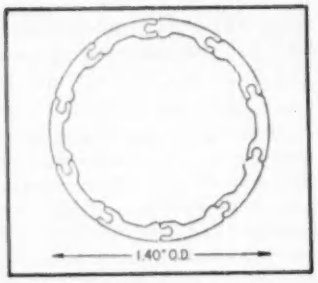
Vibration Damper Developed

During this testing program a torsional-type vibration damper, making use of inter-segment friction, was developed (See photo) and found to be a particularly effective vibration limiter for type-HH cable. As an added precaution against failure, this damper was actually installed in selected locations, covering about 15% of the line, where amplitude-recording devices showed that conditions were particularly conducive to conductor vibration.

In spite of these precautions in

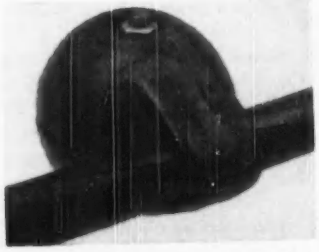


SEGMENT BREAK in the type-HH conductor used in Hoover Dam-Los Angeles lines. Conductor is shown in the standard tangent clamp. View is from above



CROSS-SECTION of type-HH copper conductor used on 287.5-kv Hoover Dam-Los Angeles transmission lines whose conductor characteristics follow:

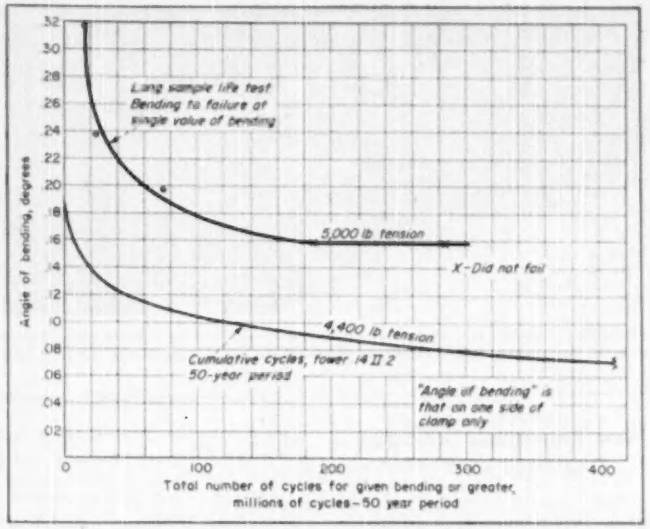
Outside diameter, inch	1.40
No. Segments	10
Area	
Circular Mills	512,000
Square Inches	0.4021
Weight, lb/1,000 ft	1,566
Breaking Strength, lb	21,110
Modulus of Elasticity, psi	16.5 x 10^6
Coef. of Linear Expan. per Deg F	0.0000094



GOSS torsional vibration damper developed for application on type-HH conductor

Source of Information

Data and engineering details for this story were supplied by C. P. Garman, chief electrical engineer, Los Angeles Department of Water and Power.


Angle of bending, degrees
Long sample life test
Bending to failure at
single value of bending
5,000 lb tension
X-Did not fail
4,400 lb tension
Cumulative cycles, tower 14 II 2
50-year period
"Angle of bending" is
that on one side of
clamp only
Total number of cycles for given bending or greater,
millions of cycles-50 year period

THIS CHART compares cycles of bending between cable and clamp required to produce failure with cycles of bending between clamp and cable experienced in the field

design the eight segment failures discovered apparently resulted from vibration fatigue. Current tests have already revealed a possible cause—one that was noted in the pre-construction vibration-life tests.

At that time it was noted that when the cable was forced to vibrate to high amplitudes until it failed the amount of energy required to cause vibration decreased with time as cycles of vibration accumulated on the sample. At that time this effect was not considered important because the amplitudes involved were much larger than those incited by natural means in operation as shown by field measurements.

All other tests had shown that the conductor took relatively large amounts of energy to keep it in vibration. It would normally be expected then that the energy in the wind which incites vibration would not be enough to cause any but a small amplitude. It is now known that this decrease in energy discovered in the laboratory has a real importance.

Now it is believed that the slight degree of bending to which the cable has been subjected in the past 15 years has made it more flexible and, therefore, more subject to vibration. Recent tests show also that the torsional type of damper has lost some of its effectiveness because of the changed characteristics of the conductor.

The investigation is continuing to determine complete vibration characteristics of the conductor and of a suitable vibration damper. Selection of locations along the line for additional dampers is essential to prolong life of the line.

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Interior Gets More Time to Fight Roanoke Decision

Department of Interior has been given more time by the Federal Power Commission to make its fight in the Roanoke Rapids case.

The deadline for filing exceptions to an FPC examiner's recommendation has been extended to June 5. The normal 20-day period for filing exceptions would have ended April 10.

Extension of the deadline and reopening of the proceedings had been asked by both Interior and the Virginia REA Association. These groups opposed the application of the Virginia Electric & Power Co for a license to develop the Roanoke Rapids site. The examiner recommended granting the license.

NLRB Decision Clarifies T-H Free Speech Clause

When does an employer overstep the boundary that separates free speech from the area in which he commits an unfair labor practice?

New light was thrown on that touchy question by a recent decision by the National Labor Relations Board involving Lake Superior District Power Co, Mich.

The free speech section of the Taft-Hartley Act protects a boss who urges his employees to vote against a labor union in a representation election. But there are two reservations. First, he may not promise the workers any extraordinary "benefits" if the union loses. Also, he may not threaten reprisal or force.

Timing of Letter a Factor

On the question of promising a "benefit" the board had said very little. The Lake Superior District Power case was particularly significant because it involved more than the "benefit" as such. A big point was the company's timing of a letter from the company president to the employees. The letter discussed a pending bargaining rights election and announced a new "survivors income insurance plan." It was sent to employees two days before the election although the plan had been adopted 11 days earlier.

NLRB concluded unanimously that the power company's letter did two things:

1. It went beyond the free speech protection guaranteed by Taft-Hartley.

2. It interfered with the right of employees to exercise free choice between having or not having a union.

Election Set Aside

Accordingly, the board set aside an election in which the company's production, maintenance, distribution, construction, and transmission employees voted 112 to 70 against the International Brotherhood of Electrical Workers, AFL, Local 276, last December. A new election will be held later, presumably after the effect of the company's letter has worn off so that the employees will be in a position to make a "free choice."

In its decision, the board did not question that the company's "original purpose" in preparing the new insur-

ELECTRICAL WORLD, Published weekly by McGraw-Hill Publishing Company, Inc. Publication Office, 99-129 North Broadway, Albany 1, N. Y. Editorial and Executive Offices, 330 West 42nd St., New York 18, N. Y. James H McGraw (1860-1948), Founder; Curtis W McGraw, President; Willard Chevalier, Executive Vice President; Joseph A Gerardi, Secretary and Treasurer; Eugene Duffield, Senior Vice President, Publications Division; Nelson Bond, Vice President and Director of Advertising; J E Blackburn, Jr, Vice President and Director of Circulation. Subscription rates: Single copy 35 cents. In the United States, $6 a year, $9 for two years, $12 for three years. Canada, $7 for one year, $11 for two years, $14 for three years. (Canadian money at par.) Pan-American countries, $15 for one year, $25 for two years, $30 for three years. All other countries $20 for one year, $30 for two years, $40 for three years. Entered as second-class matter, November 16, 1936, at the Post Office at Albany, N. Y., under the Act of March 3, 1879. Printed in U. S. A. Copyright 1950, by McGraw-Hill Publishing Company, Inc. Permission required to reproduce any of contents. Cable address McGRAW-HILL, New York. Member ABP. Member ABC.

ance plan had no connection with IBEW's organizing campaign, but, NLRB said, the company should not have announced adoption of the insurance plan and enlargement of the pension just before the election.

The sole purpose of the timing, the board concluded, was to influence the employees against the union through promise of an economic benefit.

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Passamaquoddy Study Would Cost $3.9 Million

It will take a $3.9-million investigation to find out whether or not the Passamaquoddy tidal power project is practical. That's the answer which the four-man engineering board has handed the International Joint Commission.

The board steered clear of the question of advisability of making the investigation. But its report pointed up the costly nature of the study that would be required.

"The board emphasizes," the report declared, "that many of the engineering problems involved in the Passamaquoddy project are unprecedented anywhere in the world and their solution will provide dependable data on which to base sound judgment."

The engineering board concluded that "there is no shortcut" to the $3.9-million answer.

Biggest item in a Quoddy investigation would be foundation explorations, estimated to cost $1,655,000. Other major items include field surveys, $463,000; design of project structures, $437,000; and fishery and miscellaneous investigations, $305,000.

IJC will forward the report to the United States and Canada.

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Utility Hikes Pay, Benefits

Cleveland Electric Illuminating Co and Local 270 of the Utility Workers Union Of America, CIO, have reached an agreement granting 3,200 union employees a 3¢-an-hour wage increase, a higher amount of life insurance on a contributory basis, and $100-a-month pension for employees with 20 years of service at the age of 65, including social security benefits. The agreement runs until April 1, 1951.

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Utility to Install Generator

The San Diego Gas & Electric Co will install another 50,000-kw turbo-electric generator in its Silver Gate station in 1952 at an estimated cost of $8 million.

FORMER MEMBERS of OWU and its predecessor groups find the Midwest Power Conference the right place to hold a reunion. Former OWU heads J. A. Krug and Ed Falck attended

New Resistance Indicator Discussed at Conference

Introduction of a new resistance indicator which shows in microhms the resistance and resistance changes across the weld during actual resistance welding operations was the highlight of the second annual Conference on Electric Welding at Detroit on April 5 to 7.

The conference was sponsored by the American Welding Society, American Institute of Electrical Engineers, and the Engineering Society of Detroit.

Designed by Ralph and Alex Sherman of Sherman Electric Co, Inc, this device incorporates rectifiers which feed a crossed-coil movement to indicate resistance directly as the ratio E/I. So far, the device may be used on any direct or alternating current welding circuit up to 440 v.

Discussion brought out that the inventors are working on certain changes to enable the resistance indicator to be used under operating conditions on such high-voltage connections as bus joints, switch contacts, and conductor splices.

Klaus L. Hansen, consulting engineer from Milwaukee, presented the design of a sychronous mechanical-type rectifier which reportedly represents a step forward in the problem of obtaining a practical commutator design to insure reliability and low maintenance costs. Applied to the field of welding, this rectifier produces stability in the arc to a degree higher than that obtained with the conventional welding generator, Hansen asserted.

The new electrical distribution system in the main plant of Delco Products Division, General Motors Corp, at Dayton was described by Charles W. Wright, plant engineer. This system includes low reactance bus used as risers and main feeders, with concentric cable feeding individual welders. It serves power, lighting, and welding requirements and has series capacitors in the feeders to keep voltage variation on welding equipment within a 5% range. The author remarked that the new system has cut scrap due to bad welds from 17% to 1%.

A power supply for multi-transformer welding presses was described by T. F. Ellis, Kaiser-Frazer Corp. He stated that power factor correction is the best way to reduce voltage drop and kva demand. Such corrective methods include shunt capacitors on plant distribution systems and on the feeder circuit and series capacitors on the feeder circuit. He cautioned that shunt capacitors, however, present an inrush current problem. Discussing this paper, O. J. Marshick, Fisher Body Division of General Motors, said that use of sequential welding will limit kva demand to that of largest welder without sacrificing production capacity. He pointed out also that induction motors on the same feeder tend to balance voltages unbalanced by welder loads.

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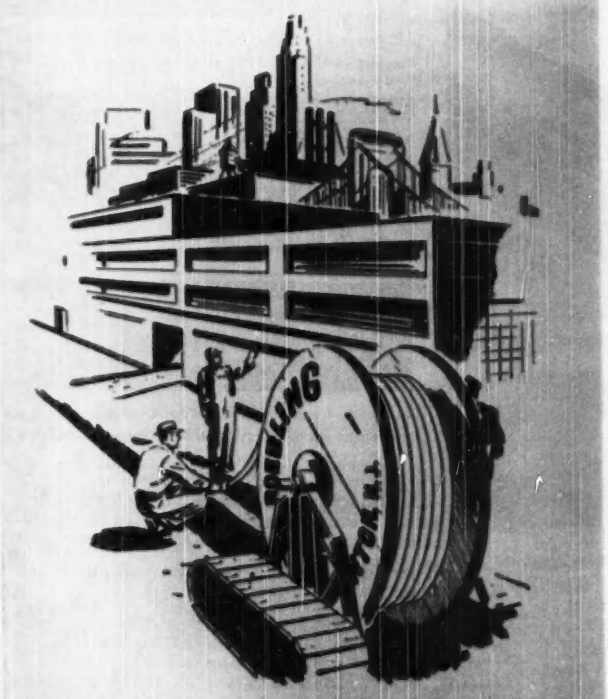
PUC Rejects U.S. Plea in Power 'Wheeling' Case

The California Public Utilities Commission has turned down the federal government's plea for a rehearing on the commission's dismissal of its case to compel Pacific Gas & Electric Co to "wheel" power to government agencies in California.

The commission commented, after reviewing the case, that the "petitioner either does not know what kind or type of special rate relief it desires or is unable to make known to the commission . . . its desires in this regard."

It added that the petitioner might present a new case to gain its ends if it wished.

Today it's Roebling!

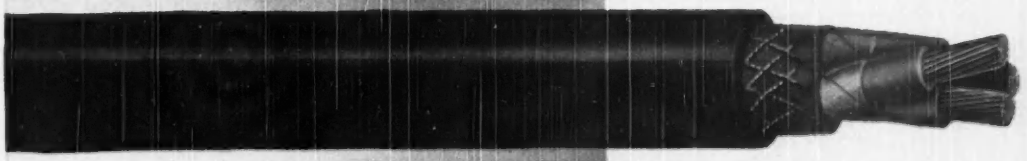


Why men who watch costs specify Roebling ROEPRENE Parkway Cable

THERE'S ONE BIG and deciding reason for choosing Roebling ROEPRENE Parkway Cable . . . it enables you to avoid the expense of underground duct systems! This cable is made for direct underground installation. Only a two- or three-foot trench is needed. And as soon as the cable is out of sight, you can put it out of mind. There'll be no service troubles from wind or weather . . . safe physical protection is assured by the non-metallic armor of a ROEPRENE sheath.

Roebling ROEPRENE Parkway Cable has rapidly become a top choice for series street lighting, parkway boulevard lighting, traffic signal, fire alarm, flood lighting, railroad yard, signal and many other circuits. It is available in single and multiple conductor types—solid or stranded—in a range from 600 to 5,000 volts.

Have your Roebling distributor or Roebling branch office help select the best cable for your special needs. John A. Roebling's Sons Company, Trenton 2, New Jersey.



From copper rod to finished cable all components of Roebling electrical wires and cables are manufactured in Roebling's own plants. Painstaking care, research, engineering and modern precision machines are your assurance of highest quality.

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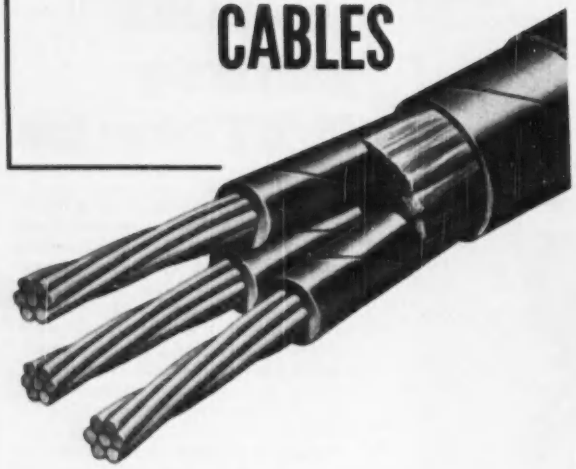
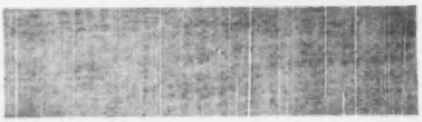
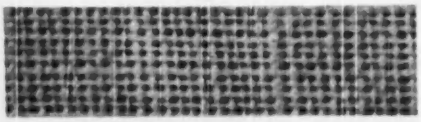
"No. 1799" means high quality

General Electric VARNISHED-CAMBRIC CABLES





1. Special untreated cotton cloth utilized in the manufacture of G-E No. 1799 varnished-cambric insulation.



2. Enlarged section of cloth. The large holes enable the cloth to absorb the maximum amount of varnish.

3. Finished varnished-cambric tape completely impregnated with varnish, provides a high degree of insulation.

That's right, when you specify General Electric cables with the famous G-E No. 1799 varnished-cambric insulation, *you know you get high quality* in every foot—*uniformity* in the thickness and strength of the insulating wall . . . high dielectric strength . . . excellent resistance to high operating temperatures.

Three factors—resulting from nearly 50 years of General Electric research and development—are primarily responsible for the excellent electrical qualities of G-E No. 1799 varnished-cambric insulation. First, a special cotton cloth, which the varnish penetrates easily and saturates thoroughly. Second, General Electric's own tough, yet flexible, varnish. Third, the careful baking processes used in the application of varnish to cloth.

The ability of varnished-cambric cable to withstand high conductor temperatures continuously can be judged by its being able to remain pliable when subjected to extreme temperatures over long periods of time. The performance of G-E No. 1799 varnished-cambric insulation under rigorous conditions proves that many years of uninterrupted service can be realized from this type of cable construction.

G-E varnished-cambric cables are available in 3 basic types:

BRAIDED—for power and control circuits, exposed or installed in conduit in dry locations; and for transformer and apparatus power leads. **INTERLOCKED-ARMOR**—for overhead distribution in power plants, factories, and the like. This cable requires no raceways, permits speedy installations. **LEADED**—for generator leads and power wiring overhead or in underground ducts. Ideal for heavy loads in wet or dry locations.

For information on the complete line of General Electric varnished-cambric insulated cables, contact your local G-E Construction Materials distributor or district office. Section W4-427 Construction Materials Department, General Electric Company, Bridgeport 2, Connecticut.

GENERAL ELECTRIC

CHECK MOLONEY HiperCore® TRANSFORMERS

against the field for Lighter Weight, Smaller Size, Operating Advantages

CHECK THESE WEIGHTS

3 Kva CL-1 HiperCore Transformer including oil . . . . . 125 lbs.
3 Kva CL-2 HiperCore Transformer including oil . . . . . 130 lbs.
3 Kva CSP Class A HiperCore Transformer including oil . . . . 155 lbs.

Easier to install—easier to store—less maintenance

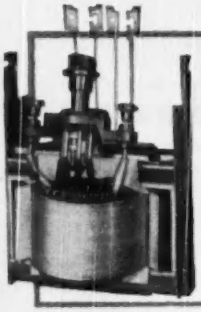
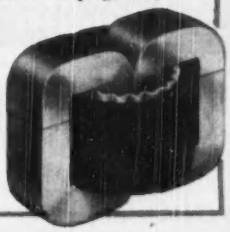
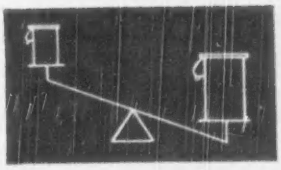


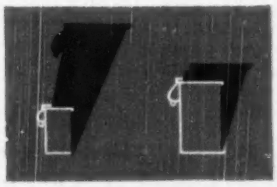
Illustration shows core-and-coil assembly. Cores are wound, annealed and impregnated, then cut into pairs of U-shaped pieces. Matching U-shaped pieces are then placed in position around the coil to complete the magnetic circuit. Core faces are cemented together. Steel bands are used to obtain tight joints



15% TO 30% LIGHTER

because the cold rolled high permeability, oriented silicon core steel has 30% to 35% higher flux carrying capacity. This makes possible the use of smaller cores and windings. Easier to handle and install than transformers having cores of hot rolled steel, these smaller and lighter transformers take up less space on the pole, in the storeroom and on the line truck.



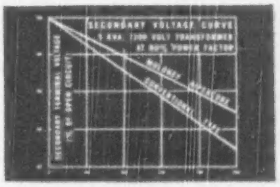


GREATER SHORT-TIME OVERLOAD CAPACITY

Moloney HiperCore Transformers have improved short-time overload characteristics which provide better peak load performance and longer life. Reduced coil mass, achieved through use of oriented steel cores, together with the extensive use of cooling ducts, results in more rapid cooling of the windings and in a lower hottest-spot temperature gradient.

BETTER VOLTAGE REGULATION

The smaller cores of HiperCore Transformers make possible windings having lower impedance. Lower impedance provides lower internal voltage drop at all loads. This is especially important during peak load periods, since HiperCore Transformers can carry higher overloads than older types, at the same permissible regulation.



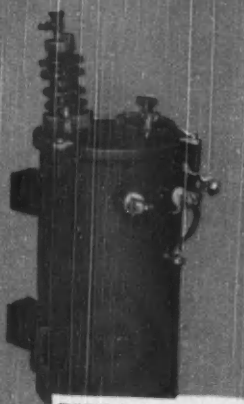
WRITE FOR BULLETIN H-303

ME49-19

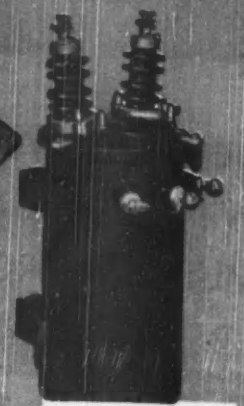
MOLONEY ELECTRIC CO.

Sales offices in all Principal Cities

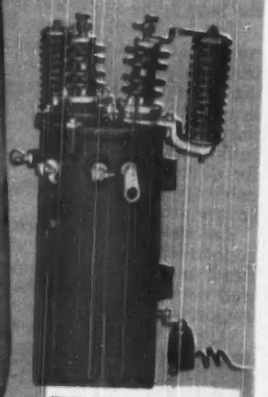
FACTORIES: ST. LOUIS, MO. • TORONTO, ONTARIO, CANADA



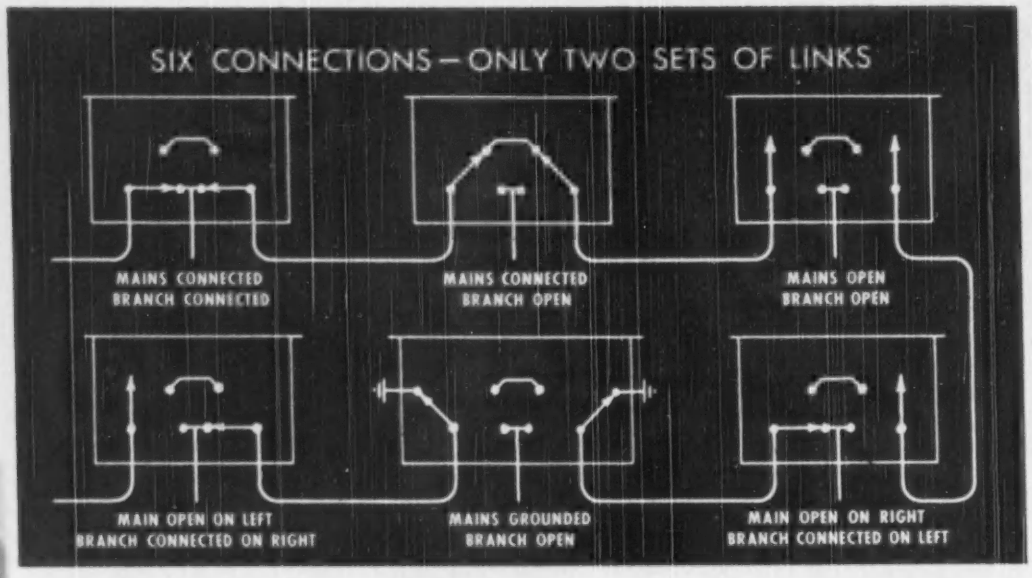
TYPE CL-1—HiperCore Transformer available in sizes 3 to 100 Kva.



TYPE CL-2 — HiperCore Transformer available in sizes 3 to 100 Kva.

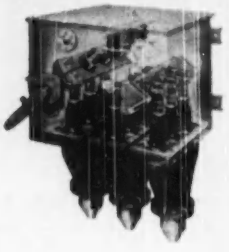


TYPE CSP-CLASS A HiperCore Transformer available in sizes 3 to 100 Kva.



Secure System FLEXIBILITY

With the VERSATILE and SIMPLE Type "RAL" MULTIPLE CIRCUIT LOAD BREAK SWITCH



The basic Type "RAL" switch unit, shown in phantom view at the right, consists of two sets of rocker arm links and cableheads for two mains and one branch circuit.

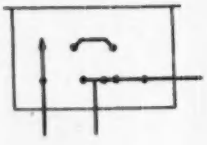
Each set of links can be in one of three positions—OFF (vertical), ON tie (45° angle), or ON tap (horizontal). A ground connection may be added as a fourth link position to permit one or both sides of the loop to be grounded for working on cables.

The basic design may be varied in many other ways. Individual problems of sectionalizing, location, and space limitations may be solved by changing cablehead locations. Main and branch cablehead locations may be interchanged—cableheads may be placed at the top, sides, or bottom of the tank, and the tank may have a throat on the side for direct attachment to a transformer. Individual cable specifications determine the style of cable entrance used.

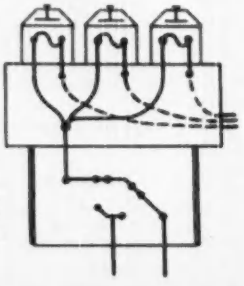
Let this versatile switch provide an efficient and economical solution to your distribution problem. Send us an outline of your switching requirements and we will quote on the proper switch at no obligation to you.

The branch may be switched on and off without disturbing loop continuity by using the outer instead of the middle location for the branch cablehead.

The branch cablehead may be on the bottom, side, or top of the tank.



Type "FC" oil fuse cutout boxes are combined with Type "RAL" oil switches to save space and installation labor. Power fuse cabinets may be used for higher interrupting capacities.



Write for Bulletin H49—"Primary Cable System Flexibility."

G&W ELECTRIC SPECIALTY COMPANY.
7780 DANTE AVENUE • CHICAGO 19, ILLINOIS, U.S.A.
Representatives in principal cities. In Canada, Powerlite Devices, Ltd., Toronto

Expansion of Power Industry Gets Promoted at Midwest Conference

DEFENSE, EXPANSION, and technical reinforcement of the power industry were all promoted in the sessions of the Midwest Power Conference at Chicago, April 5 to 7. Keynoted by the plea of Philip D. Reed, General Electric board chairman, for rallying of the American business man to the cause of free enterprise in general and the power industry's preservation in particular, the sessions, attended by 1,200, served to link engineering alertness with commercial aggressiveness.

Upholds Marshall Plan

Reed upheld the Marshall plan outlays as an indispensable weapon in the cold war and the revived expansion of European power systems as the key to recovery and stability of the war-disturbed countries. Just returned from Europe, he reported an unmistakable trend there toward private enterprise and away from government ownership and controls.

A candid outline of the philosophy of the Illinois Commerce Commission by its new chairman, Walter T. Fisher, revealed a determination to avoid politics, refrain from persecution, achieve efficient regulation, and ward off the gravitation of regulation to Washington.

J. I. Ahern of New England Electric brought the assurance that, "let alone by the public power boys," the New England states would meet all power needs adequately without 675-ft Ross dams flooding out everything (colleges and whole towns) from Springfield to the Canadian border with a man-made lake four times the expanse of Lake Champlain.

Load Building Stressed

The importance of selling electrical machinery and appliances to keep industry operating at a high level and in this way build load for utility generating plants was stressed by J. H. Jewell, vice president in charge of sales, Westinghouse Electric Corp. "Appropriations for sales power—both yours and ours—should be based on a realistic appraisal of the opportunities ahead and a willingness to expend as much effort per dollar of present sales in pioneering new ways to use electric power as we have done in the past."

E. J. Doyle, Commonwealth Edison president, outlined the comprehensive expansion program of the Chicago area companies, including details of the new Ridgeland station, first new station with cyclone furnace combustion.

How eight REA cooperatives in Iowa joined hands with Iowa Electric Light & Power Co to build adequate service to the rural area without wasteful duplication of facilities was told by John M. Drabelle. The co-ops are relieved of the responsibility of maintaining and operating the Prairie Creek 40-kw station built by the resulting Central Iowa Power Cooperative or of the otherwise necessary 115-kv transmission and 34.5-kv subtransmission. The power company will "wheel" energy over its system, provide the reserves, maintain the present REA 115 and 34.5-kv lines and substations. Unique solution was found in this long term manner for a situation potentially capable of destructive competition and duplication for both parties.

Government Competitions Hit

The sad opposite of this was the story by Edwin Vennard, Middle West Service Co, of the machinations to circumvent the intent of the REA Act and put the government agencies into competitive parallel with the utilities long established in the SPA area.

Trends in plant design and equipment evolution were the theme of a group of papers by prominent consulting engineers. G. A. Gaffert, Sargent & Lundy, reported 90% availability for a pressurized furnace with cyclone combustion and no induced draft fan; also attractively high return on investment on reheat. Benefits of unit plants, outdoor designs, centralized control, and flat layouts were detailed by P. E. Gourdon, Ebasco Services, Inc. B. C. Mallory gave the Stone & Webster philosophy and experience with regeneration and reheat as well as ranch-type vs skyscraper construction, paralleled boilers and header flexibilities where omission of boiler interconnections is not the usual distinct advantage.

Favors Dual Circulation Boiler

The dual circulation boiler is particularly suited to situations where steam of high purity is to be generated from water high in silica or solids, said R. A. Lorenzini of Foster-Wheeler, particularly where make-up is high. Two separate heat absorbing sections have their own independent circulating systems, the blowdown from the low-concentration primary section constituting the feed for the secondary section.

Declining coal consumption should make the coal industry a party to promotion of electricity in all its diversified applications. This, said B. A. Landry, Battelle Memorial Institute, is logical to offset the impending 5-year loss of 20 million tons by railroad dieselization, 80 to natural gas, and 20 to additional sales of fuel oils. Otherwise the consumption of coal for fuel may shrink to 210 to 230 million tons a year before population, heat use, or decline of competition turn the tide upward. Meanwhile potential kerogen conversion from known oil-shale deposits dwarfs in quantities our present known reserves of petroleum. One deposit alone will afford 300 billion barrels of oil, said Boyd Guthrie of the U. S. Bureau of Mines, and the top-third "cream" constitutes three times the total petroleum produced since 1859.

Movies of the performance of a new type of air break switch for 110 and 132-kv lines, shown by D. E. Buchanan of Delta-Star, demonstrated the efficacy of the supplementary air blast to rupture the arc with charging currents as low as 7a and load currents as high as 135a.

Influencing factors which prevent rigorous adherence to the mathematical probabilities in system planning were discussed by H. P. Seelye, Detroit Edison. That accidents can virtually be guaranteed by inept design and careless supervision of construction was the warning of J. O. Leslie and D. L. Greene of Gilbert Associates; they demonstrated by model that many hazards originate on the drawing board.

Nathan Cohn of Leeds & Northrup presented new graphical evidence that the gap between the devotees of governor refinement and those of tie line bias control is being bridged and that load changes can be selectively picked up by the generation of the immediate area. J. R. Carlson in reviewing the reheat and high temperature generation programs said Westinghouse stands ready to back up adoption of 1,100 F.

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BPA Lowers Co-op Rates

Establishment of the basic Columbia River wholesale power rate of $17.50 per kw year for power generated at Hungry Horse Dam is expected to lower current wholesale power rates to western Montana cooperatives by more than 60%, Bonneville Administrator Paul J. Raver said recently. His statement followed the announcement by Secretary of the Interior Oscar L. Chapman that rates recommended by BPA had been approved.

PROMINENT at EEI Sales Conference were these six: J. T. Coatsworth, left, EEI; Harry Restofski, West Penn Power Co; H. E. Cox, Birmingham Electric Co. In right panel, E. L. Lindseth, president of EEI and Cleveland Electric Illuminating Co; G. E. Whitwell, Philadelphia Electric Co and chairman, EEI Prize Awards Committee; E. O. George, Detroit Edison Co, and chairman, EEI Sales Personnel Committee

Utilities Doing More Aggressive Selling, EEI Conference Informed

ELECTRIC COMPANIES are doing more aggressive selling. A return to full or partial merchandising of electrical appliances is prevalent. Many companies are rebuilding their sales forces. These are the trends of today which Harry Restofski reported to the 800 persons attending the annual sales conference of Edison Electric Institute, April 3 to 6, at Chicago.

Restofski, chairman of the Institute's Commercial Division General Committee, said that division committees are placing special emphasis on providing aids for more aggressive selling.

Ralph Robey, chief economist of the National Association of Manufacturers, said that at a recent meeting with his staff each of a representative group of manufacturers reported high-level business activity. Indications were that this high level would continue through the third quarter of 1950.

A recent survey of industrial plants making the same type of product showed that those lighted to higher levels used that illumination an appreciably greater percentage of the time. In plants where artificial illumination is poor there is little inducement to use it as it adds little to natural lighting. Maxwell Cole, Philadelphia Electric Co. read the paper by J. Mason Guillory, manager of the Industrial and Commercial Division, New Orleans Public Service, Inc, who made the survey.

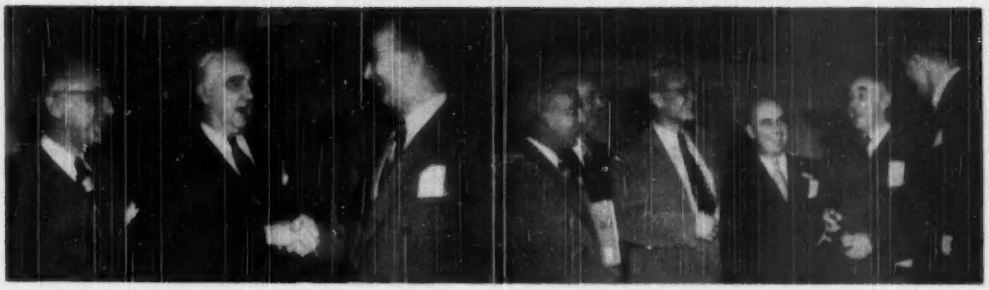
The estimated annual revenue lost by utilities to the LP gas industry on appliances sold since January 1943 was $115,825,400, according to J. Rushton, Frigidaire. For the average utility this is about $3 a meter.

Most utilities are now actively seeking industrial loads because their desirable characteristics far outweigh their undersirable ones, asserted C. P. Conrad, president, Iowa-Illinois Gas & Electric Co. The latter can, to a large extent, be compensated for in well-designed rate schedules. The higher load, lower distribution investment, and very much lower customer service cost of industrial service justify its lower rates in comparison with residential and commercial services.

The load and revenue possibilities offered to electric utilities through promotion of Planned Lighting in the store, home, school, office, and industrial markets were dramatized in a presentation sponsored by the National Promotion Committee of the Planned Lighting Program. Entitled "Light Up Tomorrow," the skit showed many of the PL sales and educational aids as they are used by utilities and their effect on typical prospects in the store, school, and residential markets.

Two-thirds of all sales are made by

THESE GROUPS include Luther T. Cole, left, Birmingham Electric Co; Matthew Luckiesh, Foster & Davies; Mary Dodds, Toledo Edison Co; H. P. Megargee, American Gas & Electric Service Corp; and H.S. Metcalfe, West Penn Power Co. In right panel are Grover C. Neff, Wisconsin Power & Light Co; D. M. DeBard, Stone & Webster; E. Nottestad, Northwest Public Service Co; and S. G. Hibben, Westinghouse



EEI SALES CONFERENCE groups include, left to right, F. E. Davis, Commonwealth Services; H. A. Stroud, Monongahela Power Co; and H. E. Carney, Toledo Edison Co. In right panel are T. O. McQuiston, Metropolitan Edison Co; P. D. Brooks, Ebasco Services, Inc; T. R. Poteat, J. F. McBride, and L. Jennings, all of General Electric Co; and W. H. Putnam, Texas Electric Service Co

one third of the salesmen in a majority of sales organizations, declared Jack Lacy, president, Lacy Sales Institute, Newton Centre, Mass. There are three basic ways to sell. One is the ordinary method of narrative selling which consists of describing the proposition and is used by most salesmen. Two is the use of suggestion. Three is the powerful method of selling perfected by Socrates which consists of presenting leading questions so that the prospect, of his own volition, arrives at the decision to buy. It is the latter two methods which get the "tough" sales, Lacy said.

Pennsylvania Power & Light Co was presented with the Thomas W. Martin Rural Electrification Award for outstanding performance in promotion of rural electrification during 1949. Georgia Power Co and Consumers Power Co, Jackson, Mich., received honorable mentions.

George A. Hughes Awards for electric appliance promotion, sponsored by Hotpoint, Inc, consisting of first and second prizes in five divisions, went to these companies:

Kitchen—Pennsylvania Power & Light Co and Gulf States Utilities Co.

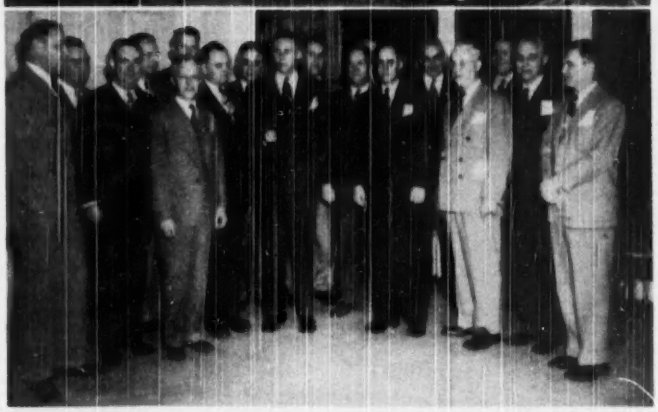
Range—West Penn Power and Kentucky & West Virginia Power Co.

Water Heater—West Penn Power Co and Detroit Edison Co.

Dishwasher—Pennsylvania Power & Light Co. No second award.

Commercial Cooking—Toledo Edison Co and Pennsylvania Power & Light Co.

The Laura McCall Home Service Awards, offered by *McCall's Magazine*, were won by those home service directors: Division A, Miss Edna A. Stephany, Pennsylvania Power & Light Co; Division B, Miss Virginia Pierson, Pennsylvania Power Co; Division C, Miss Muriel H. Kodis, Arizona Edison Co; Miss Margaret Buchan, Indiana & Michigan Electric Co; and Miss M. Marjorie Hume, San Diego Gas & Electric Co.



CAST AND PRODUCTION STAFF of J. S. Schuchert's "Light Up Tomorrow" take a bow. Left to right are Harold Green, James Duffy, Fern Schneider, Ralph Wagner, Phil Sowersby, Frank Innes, Clayton Ellis, Lucy Long, Wayne Kundy, C. I. Schneider, E. C. Huerkamp, Jan Reynolds, P. T. Lagrone, and Ralph Brady. In lower panel are some members of the Industrial Power and Heating Section Committee of EEI: L. F. Kielsmeier, G. S. Young, P. W. McCormick, George Patterson, L. J. Lamberger, R. J. George, J. R. David, J. H. Ahrens, R. G. Ely, N. J. Roberts, Maxwell Cole, J. H. Coates, B. R. Askew, S. Alling, C. H. Purdy, W. P. Lyman, W. D. Wilkinson, and J. B. Taylor

PUD Increases Wages

Clark County PUD commissioners have signed a 13-month contract with the Office Employees Union, Local 68, granting office workers an average pay increase of 2.43%. The commissioners have also approved wage provisions of a contract being negotiated with the Technical Engineer and Architects Association, Local 17, providing for an $8-a-month across-the-board increase for engineers, which is equivalent to 2.46%. The engineers' contract will run 25 months.

FINANCIAL

Yields—Operating Electric Utility Securities

Date or Period	Bonds			Preferred Stocks			Common Stock		
	1st Quality	2nd Quality	3rd Quality	1st Quality	2nd Quality	3rd Quality	1st Quality	2nd Quality	3rd Quality
1950									
April 6	2.60	2.61	2.71	3.77	4.00	4.36	5.19	5.81	6.58
Mar. 30	2.59	2.61	2.71	3.78	4.01	4.36	5.22	5.85	6.67*
1949									
April 4	2.71	2.78	2.92	4.01	4.27	4.67	5.77	6.65	8.05
Mar. 28	2.70	2.78	2.92	4.00	4.27	4.67	5.78	6.69	8.08
LAST FOUR QUARTERS									
1st 1950	2.59	2.61	2.71	3.78	4.01	4.36	5.22	5.85	6.67
4th 1949	2.59	2.61	2.72	3.85	4.06	4.46	5.37	6.15	7.01
3rd 1949	2.61	2.65	2.77	3.88	4.15	4.54	5.55	6.47	7.51
2nd 1949	2.69	2.75	2.88	3.98	4.26	4.66	5.94	6.96	8.14

* Revised.
Data: Reis & Chandler, Inc.

South Carolina Merger Cleared by Commissions

The last obstacles to merger of South Carolina Power Co, Charleston, with South Carolina Electric & Gas Co, Columbia, now have been cleared. The State Public Service Commission and Federal Power Commission have given their approval to transfer of South Carolina Power's property and assets to its parent.

Electric & Gas bought the outstanding common stock of South Carolina Power from Commonwealth & Southern Corp in 1948. The merger petition, filed last fall, had been opposed by South Carolina Power Authority (Santee-Cooper) and several rural electric cooperatives.

The state commission's order stipulated that both companies must continue present rates to customers.

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Nepsco Asked to Sell Some of Its Holdings

Securities and Exchange Commission has given New England Public Service Co until April 18 to file an application to sell part of its common stock holdings in one of two subsidiaries and apply proceeds to a $9.9-million bank loan.

The Commission called for sale of 200,000 common shares of Public service Co of New Hampshire, Manchester, or enough common shares of Central Maine Power Co, Augusta, to raise approximately the same amount of money.

Nepsco borrowed $13.5 million in 1947 to finance a liquidation plan approved by SEC. The loan was to be retired within a year through sale of common stock holdings. After two one-year renewals, the loan had been reduced to $9.9 million and no sales of stock had been made.

The Commission said it saw "no reason which would justify further extension of the loan when it comes due in October, 1950." Nepsco owns 493,857 shares (52.36%) of the common stock of New Hampshire, and 1,315,181 shares (60.40%) of the common stock of Central Maine.

FINANCIAL BRIEFS

Cleveland Electric Illuminating Co will ask shareholders at their meeting, April 25, to act on a proposal to increase the authorized issue of $4.50 preferred stock from 500,000 to 750,000 shares.

A judgment of $779,958 given Montana-Dakota Utilities Corp against Northwestern Public Service Co by the U. S. District Court of South Dakota has been reversed by the U. S. Circuit Court of Appeals. The Appeals Court held that the District Court lacked jurisdiction because the charges of unreasonable rates and improper filing of some rate schedules and the belated filing of others were matters for Federal Power Commission to decide.

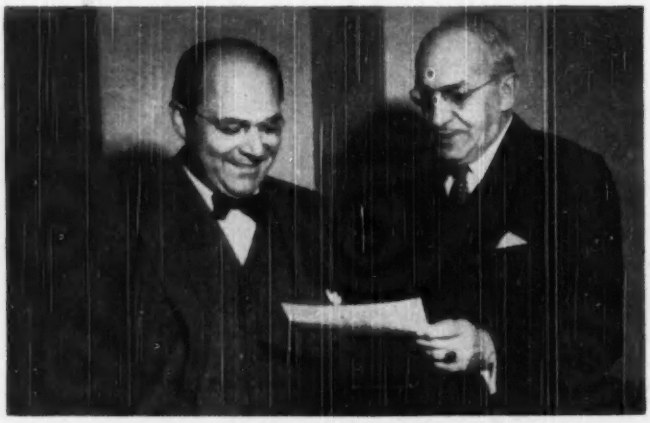
An issue of $18 million in additional first mortgage bonds has been sold to underwriters by Boston Edison Co. Of the proceeds $12 million would be used to retire bank debt and $6 million to pay off 3% notes.

American Gas & Electric Co has asked SEC permission to sell at competitive bidding $27 million of serial notes dated May 1, 1950. Proceeds would be used to redeem 151,623 shares of outstanding 4¾% cumulative preferred stock and to discharge a portion of the company's serial bank loan notes.

Texas Utilities Co, Dallas holding company, has been exempted from the Public Utility Holding Company Act of 1935. The Securities and Exchange Commission announcement also applies to the three Texas Utilities subsidiaries, Dallas Power & Light Co; Texas Electric Service Co, Fort Worth; and Texas Power & Light Co, Dallas.

Indiana & Michigan Electric Co has received SEC permission to borrow from time to time this year not more than $5 million for construction purposes.

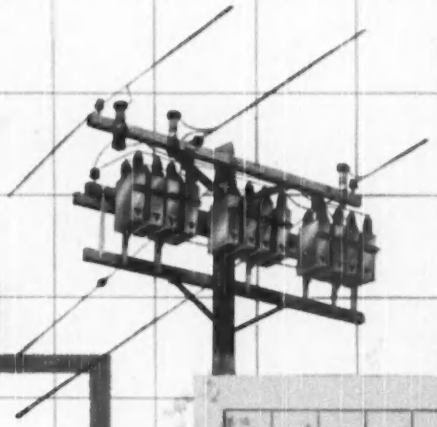
Public Service Co of Colorado directors have called a special meeting of stockholders, May 22, to consider a proposal to split the common stock two for one. The directors also increased the quarterly dividend from 65c to 70c.



CHECK FOR $10,720,000 which Consolidated Edison Co of New York gave General Public Utilities Corp in exchange for outstanding common stock of Staten Island Edison Corp is examined by A. F. Tegen, GPU president, left, and Ralph H. Tapscott, Con Ed board chairman. Con Ed system now serves most of Westchester County and almost all of Greater New York

DOWN GOES THE COST PER KVAR WITH

ELEMEX capacitors in stainless steel tanks



Want to save some real money? You can, by installing good capacitors to improve power factor and lower line losses. For even greater savings choose ELEMEX capacitors, whose stainless steel tanks never need painting!

When you eliminate painting, you soon pay for the slightly higher first cost of ELEMEX capacitors. Then you begin to pile up worthwhile savings—a real aid in combatting constantly rising maintenance costs.

ELEMEX capacitors offer many other advantages: conservative design with low unit stress for long life; individual evacuation, capillary impregnation, and constant testing in production; "Hydis" surface treatment for high heat dissipation; Paragroove connectors to simplify installation; L-M "Lifetime" solder-sealed bushings.

Throw away your paint brush! Get ELEMEX long-life capacitors in stainless steel tanks. Get the whole story; ask the L-M Field Engineer for Bulletin PC1 or write Line Material, Capacitor Division, Milwaukee 1, Wisconsin (A McGraw Electric Company division).

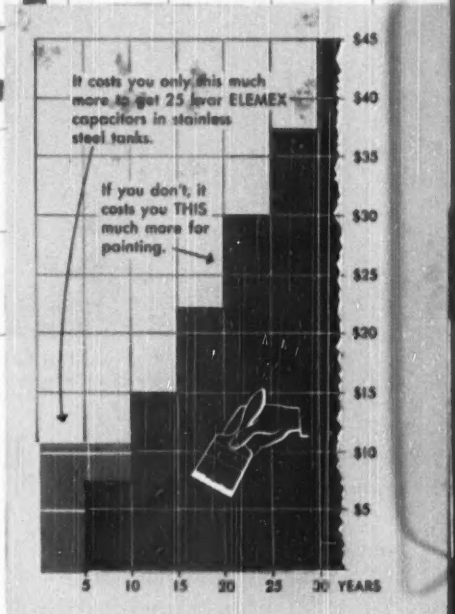
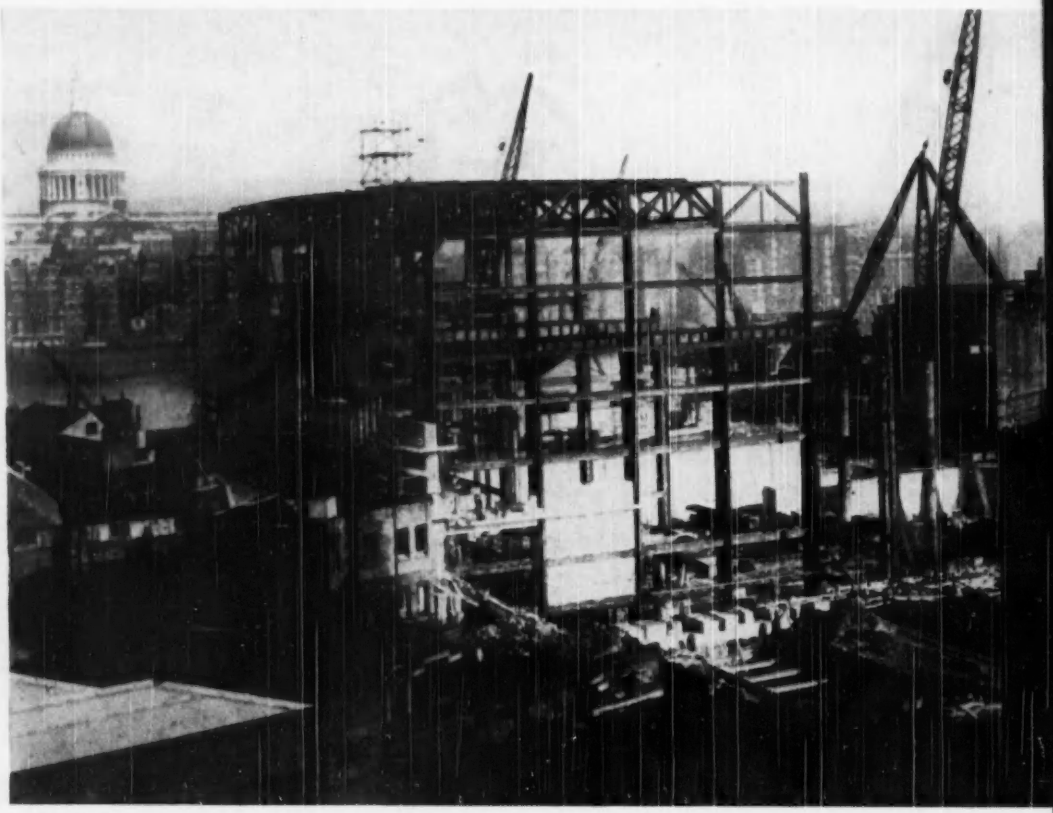


Chart shows the additional cost for painting capacitors, based on utility company averages of $7.50 per job, every five years. (15 kvars cost only $6.75 more than mild steel. The first paint job more than pays the difference.) Costs and periods vary with local conditions and practices—but on the average, you'll be ahead of the game on the second paint job! Because of the long life of ELEMEX capacitors, you'll make plenty of savings! (Utility cost estimates are based on the fact that it's almost impossible to paint a capacitor on the pole, and units are usually taken down and into the shop while a freshly painted bank is installed.)

7620

LINE MATERIAL . . . Capacitors

Complete Coordinated Equipment for Distribution Today

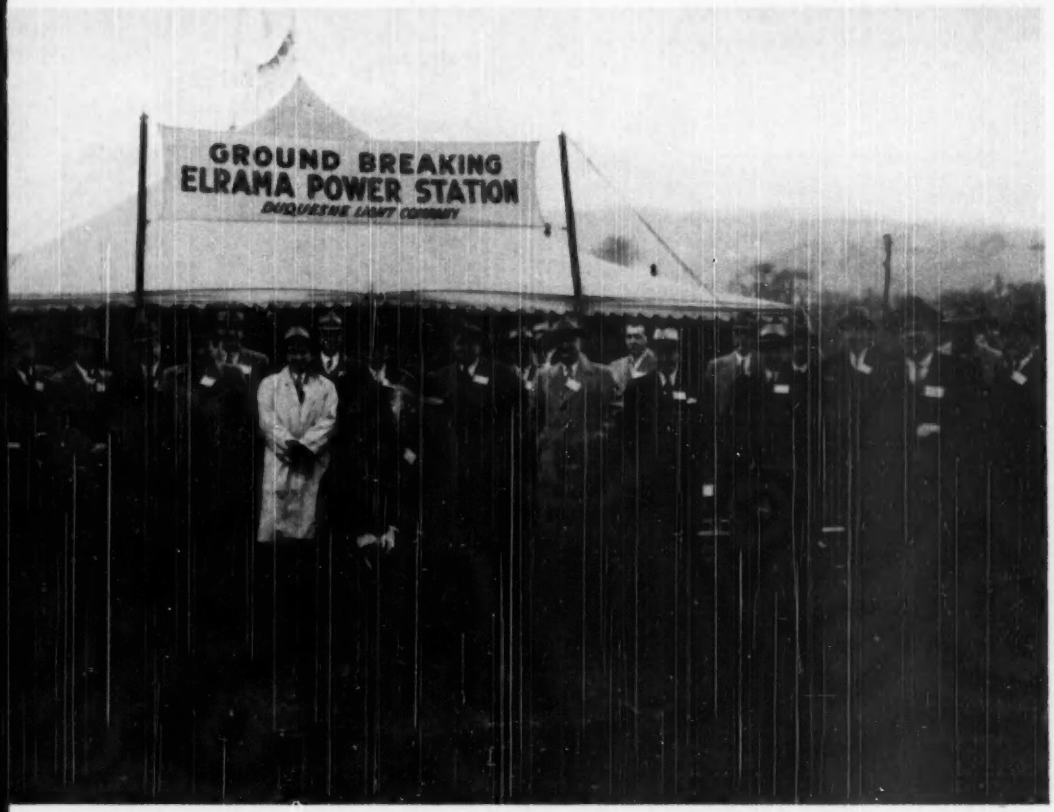


AT BANKSIDE, across the Thames River from St. Paul's Cathedral in London, the British Electricity Authority is erecting a 120,000-kw generating plant at a total cost equivalent to $30,800,000. The picture shows the steelwork for boiler house and congestion in the area

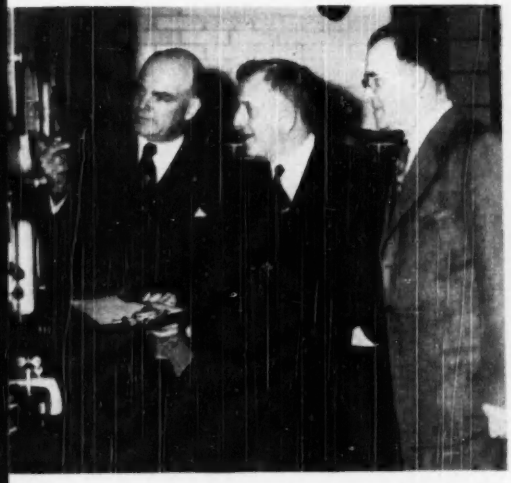
The Industry in Pictures

CLINT YOULE, TV actor, explains to his wife the need for adequate wiring in their home. Program sponsor is Chicago Electric Association

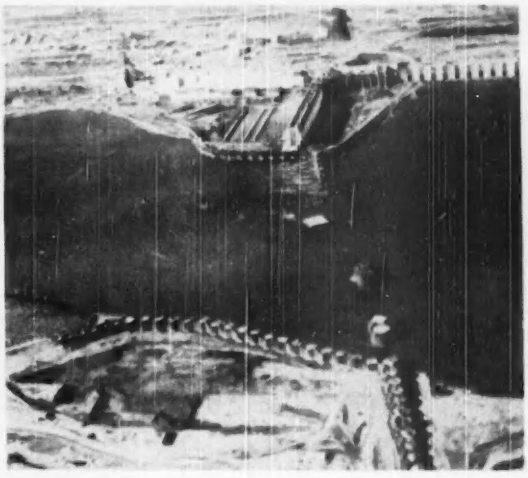
GREENHOUSE of employee of California Electric Power Co, Riverside, consists of 1,250 burnt-out fluorescent lamps. The cost was small



PRESSLY H. McCANCE, president, Duquesne Light Co, Pittsburgh, turns the first ground for the company's Elrama Station in the presence of other company officials. The station will have two 95,000-kw units and will cost $28 million. First unit is to be ready in December 1951



JAMES W. PARKER, left, president; P. M. Brown, chairman; W. M. Adair, plant superintendent, start Detroit Edison's Trenton Channel Plant



McNARY DAM on the Columbia River is now under construction by the Army Engineers. Powerhouse will be in Oregon in the foreground

YOU CAN BE **SURE**.. IF IT'S

Westinghouse

The greatest proof...

1,000,000

WESTINGHOUSE "CSP" TRANSFORMERS

In mid-March, 1950, Westinghouse sales of "CSP"® Distribution Transformers passed the million mark. The one-millionth unit was shipped to Dallas Power & Light Company.

There is no greater proof of the value of the Completely Self-Protecting Distribution Transformer than this enthusiastic customer acceptance.

This, again, is more evidence that you can be *sure* . . . if it's Westinghouse. J-70556-A

Westinghouse

"CSP"

TRANSFORMERS

MEETINGS

Northwest Public Power Association
Semi-annual Convention, Davenport Hotel, Spokane, Wash., April 17-19.

Edison Electric Institute
Meter and Service Committee, Netherlands-Plaza Hotel, Cincinnati, Ohio, April 17-19; Industrial Relations Committee, Netherlands-Plaza Hotel, Cincinnati, Ohio, April 20; Industrial Relations Committee, Purchasing and Stores Committee, Schroeder Hotel, Milwaukee, Wis., April 24-26; Prime Movers Committee, Hydraulic Power Committee, Accident Prevention Committee, Edgewater Beach Hotel, Chicago, Ill., May 1-2; Electrical Equipment Committee, Edgewater Beach Hotel, Chicago, Ill., May 2-3; Transmission and Distribution Committee, Cosmopolitan Hotel, Denver, Colo., May 25-26; Annual Convention, Auditorium, Atlantic City, N. J., June 5-7.

Indiana Electric Association
Young Men's Utility Conference, Hipaco Hall (Indianapolis Power & Light Co.), Indianapolis, Ind., April 18-19.

Public Information Program
Mid-Atlantic Regional Meeting, Barclay Hotel, Philadelphia, April 19; Steering Committee, Sheraton Hotel, Chicago, May 10; National Meeting, Sheraton Hotel, Chicago, May 11.

Electrochemical Society
Annual Convention, Statler Hotel, Cleveland, Ohio, April 19-22.

American Institute of Electrical Engineers
Power Conference, sponsored by Committee on Power Generation, Industrial Power System, and System Planning, William Penn Hotel, Pittsburgh, Pa., Power Generation, April 19, Industrial Power System, April 20; Northeast District Meeting, Sheraton-Biltmore Hotel, Providence, R. I., April 26-28; Great Lakes District Meeting, Hotel Hayes, Jackson, Mich., May 11-12; Conference on Telemetering, Benjamin Franklin Hotel, Philadelphia, Pa., May 24-26; Summer General Meeting, Huntington Hotel, Pasadena, Calif., June 12-16.

Tennessee Valley Public Power Association
Annual Convention, Andrew Jackson Hotel, Nashville, Tenn., April 20-21.

Pennsylvania Electric Association
Accounting Conference, Benjamin Franklin Hotel, Philadelphia, Pa., April 24-25; Industrial Committee, Industrial Power Conference, Bedford Springs Hotel, Bedford, Pa., May 2-3; Prime Movers Committee, George Washington Hotel, Winchester, Va., May 11-12; Meter Committee, Hotel Bethlehem, Bethlehem, Pa., May 17-18; Systems Operation Committee, Spring Meeting, Skytop Lodge, Skytop, Pa., May 18-19; Transmission and Distribution Committee, Spring Meeting, Alexander Hotel, Hagerstown, Md., May 25-26; Joint Meeting, Traffic Safety Committee, May 26; Electrical Equipment Committee, Abraham Lincoln Hotel, Reading, Pa., June 19-20.

Northwest Electric Light & Power Association
Engineering & Operation Section, Vancouver Hotel, Vancouver, B. C., April 26-28.

Oklahoma Utilities Association
Annual Convention, Biltmore Hotel, Oklahoma City, Okla., May 4-5.

Interstate Power Club of New York
Hotel Martinique, New York City, May 8.

Commercial and Industrial Electrical Exhibit
Sponsored by Electrical Manufacturer's Representatives Association of Michigan, Convention Hall, Detroit, Mich., May 10-12.

Public Utilities Advertising Association
Annual Convention, President Hotel, Kansas City, Mo., May 11-12.

* **Meter Engineers Committee of New York State**
Special Meeting, Hotel Lexington, New York, N. Y., May 11-12.

New Jersey Utilities Association
Annual Spring Conference, Seaview Country Club, Absecon, N. J., May 12.

Missouri Valley Electric Association
Annual Meeting, President Hotel, Kansas City, Mo., May 16; Accounting Conference, President Hotel, Kansas City, Mo., May 18-19.

Pacific Coast Electrical Association
Annual Convention, Mapes Hotel, Reno, Nev., May 31-June 2.

National Association of Electrical Distributors
Annual Convention, Convention Hall, Atlantic City, N. J., June 12-16.

Canadian Electrical Association
Annual Convention, Manoir Richelieu, Murray Bay, Que., Canada, June 15-19.

American Society of Mechanical Engineers
Semi-annual Meeting, Hotel Statler, St. Louis, Mo., June 19-23.

American Society for Testing Materials
Annual Meeting with Exhibit of Testing Apparatus and Related Equipment, Chalfonte-Haddon Hall, Atlantic City, N. J., June 26-30.

* **CIGRE**
International Conference on Large Electric Systems, Paris, France, June 29-July 8. I. W. Green, secretary, American Gas & Electric Service Corp, 30 Church St, New York 8, N. Y.

* **World Power Conference**
London, England, July 10-12. H. C. Forbes, secretary, Consolidated Edison Co, 4 Irving Place, New York 3, N. Y.

* Additions This Week.

TVA Plant Work Begins

TVA will begin work immediately on the Widows Bar steam plant near Bridgeport, Ala. The plant is to be in operation by July 1952, initially with two generators with rated capacity of 112,500 kw. The overall cost will be $36,500,000.

Canadian Output, Primary Use Set Records in 1949

In both production of energy and consumption of primary power Canadian central stations set records in 1949.

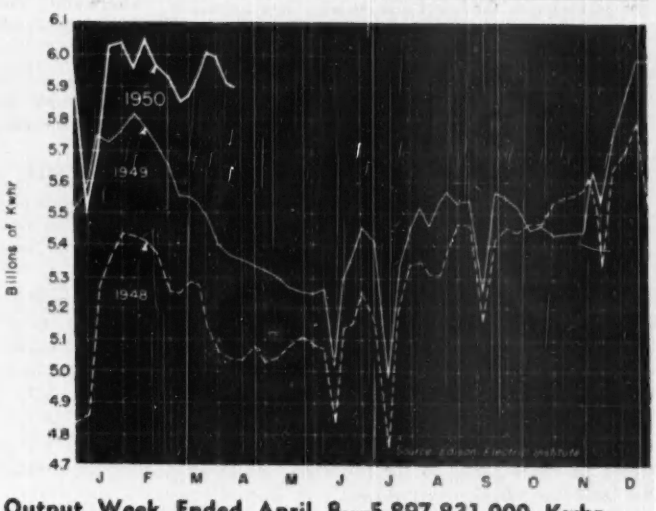
Total energy production was 46,673,214,000 kwhr, which topped the previous high of 44,986,364,000 kwhr in 1947. Primary power consumption was 42,102,584,000 kwhr; the previous high was 40,606,749,000 kwhr in 1948.

Exports to the United States were a trifle higher than in 1948 but still were far below previous years.

Primary consumption in December was 3,746,898,000 kwhr, the third record monthly high in a row.

The following statistics are in thousands of kilowatt hours:

Period	1949	1948
Twelve months' output	46,673,214	44,568,849
Primary	43,455,082	41,958,541
Secondary	3,218,132	2,610,308
Primary Consumption	42,102,584	40,606,749
Net Exports to U. S.	1,730,690	1,658,313
December Output	4,039,795	3,694,686
Primary	3,838,585	3,541,598
Secondary	201,210	153,188
Primary Consumption	3,746,898	3,415,016
Net Exports to U. S.	184,368	138,225
November Output	3,914,482	3,634,387
Primary	3,721,626	3,503,299
Secondary	192,856	131,088
Primary Consumption	3,629,358	3,387,713
Net Exports to U. S.	95,269	139,671



Output Week Ended April 8—5,897,831,000 Kwhr

Weekly Output, Millions Kwhr

1950		1949		1948	
Apr 8	5,898	Apr 9	5,360	Apr 10	5,633
Apr 1	5,992	Apr 2	5,378	Apr 3	5,037
Mar 25	5,993	Mar 26	5,404	Mar 27	5,065
Mar 18	6,015	Mar 19	5,496	Mar 20	5,145
Mar 11	5,937	Mar 12	5,531	Mar 13	5,285
Mar 4	5,879	Mar 5	5,552	Mar 6	5,293
Feb 25	5,854	Feb 26	5,559	Feb 28	5,252
Feb 18	5,931	Feb 19	5,650	Feb 21	5,254
Feb 11	5,971	Feb 12	5,722	Feb 14	5,385
Feb 4	6,062	Feb 5	5,778	Feb 7	5,412
Jan 28	5,972	Jan 29	5,810	Jan 31	5,429

Percent Change from Previous Year

	Apr 8	Apr 1	Mar 25
New England	+12.2	+14.9	+14.5
Mid-Atlantic	+ 6.6	+ 8.2	+ 9.3
Central Industrial	+ 9.5	+ 9.4	+ 9.5
West Central	+ 9.4	+ 8.9	+10.3
Southeast	+12.7	+12.2	+11.6
South Central	+14.0	+11.8	+11.5
Rocky Mountain	+ 9.2	+ 8.7	+ 9.5
Pacific Coast	+10.8	+ 9.3	+13.9
Total United States	+10.0	+ 9.9	+10.9

IN THE INDUSTRY

WILLIAM B. WHICHARD

BICKERING among the various elements of public power has reached the point where even some of the participants need a scorecard to detect who is fighting whom, and why.

First, the Southwestern Power Administration and federally financed electric co-ops began arguing over contracts being negotiated by SPA with investor-owned power companies. Then, a row broke out in the public ownership state of Nebraska, municipals wrangling with power districts over power supply costs. As if that were not confusing enough, the Reclamation Bureau stepped into the picture with a threat to build federal transmission lines into Nebraska. And, more recently, the State of New York injected new life into its hitherto quiescent Power Authority for the avowed purpose of barring federal development of key hydroelectric sites in the Empire State.

The latter fracas, which is just getting up steam, confused even the American Public Power Association. At its recent convention, APPA advocated development of St. Lawrence River power by either the U. S. or New York.

But all these rows are likely to appear insignificant in comparison with the brawl now brewing over control of civil construction by the Army Engineers. This will qualify as a public power battle since the Engineers' vast program of hydro power development is a major portion of its civil construction work.

The battle is still in the early skirmishing stages. It started when a majority of members of the Hoover Commission on federal reorganization recommended that Army civil functions be transferred to the Interior Department and be combined there with Interior's reclamation and power activities. In addition, the Hoover board urged establishment of a board of analysis, in the President's offices, as the final authority in screening plans of the construction agencies.

Advantages of these proposed moves, it was predicted, would be better management control over federal resource development. This was seen as cutting development costs through eliminating overlapping and uneconomic activities. Management control, of course, would be vested firmly in the President. At present, the latter has effective control only over Interior's resource development. Congress decides both the planning and construction undertaken by the Engineers. The President, of course, may instruct the Army to undertake or abandon certain projects. But Congress can—and does—overrule these instructions.

This factor is the most potent weapon in the arsenal of those resisting the consolidation proposal. Congress, which must pass on any reorganization of the government, will be most reluctant to give up its firm grip on the activities of the Engineers.

There is no certainty, however, that the President will seek the consolidation recommended by the Hoover Commission, not in the near future, at any rate. If he does, he may revise the Hoover proposals and ask only for a board of analysis which would permit him to control projects in the planing stages. This well might avert a more serious row with Congress over full-scale consolidation. On the other hand, he may accept the counsel of political advisors and keep the matter out of Congress until after the elections.

TECHNICAL NOTES

ARCHER E. KNOWLTON

Brick plants at or near utility power plants might conceivably consume the flyash and slag produced, because these make acceptable brick in a wide range of proportions.

Collector rings should, when the generator is overhauled, be inspected for threading, pitting, scoring, eccentricity, hot spots and connection tightness.

Alternating current networks are serving 187 cities around the world and 105 utilities are involved.

Burning of radioactive wastes and byproducts is an unpermissible disposal procedure unless provision is made to decontaminate the products of combustion.

Buried cable at an airport evidently needs surface identification of its location. A ditcher excavated across the route of the main cable; the control tower was helpless.

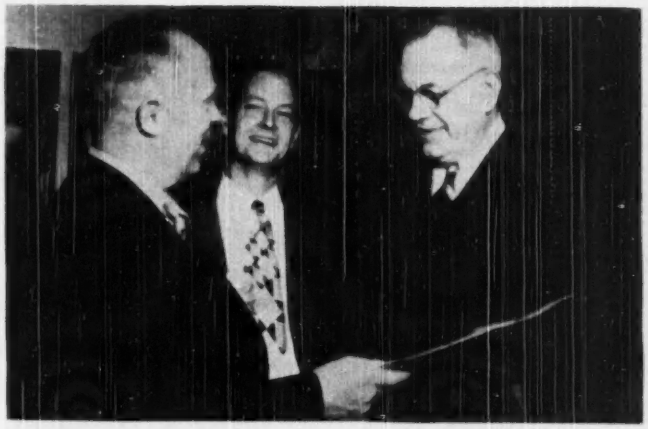
Reheat fails to win acceptance in quarters where the feeling is that the improved thermal economy should carry substantially more than the added investment to compensate for complexity of installation and operation.

Current in a line-to-ground fault on an ungrounded system consists solely of the charging current to ground of the unfaulted conductors.

Distribution transformers with secondary resistor grounded are gaining in favor as a comparatively inexpensive way of providing neutral grounding for alternators supplying delta windings of a step-up transformer.

Copper-silver alloy wire is being used by the Signal Corps. It has added conductivity, has more stretch relief and handles more easily.

MANUFACTURERS and MARKETS



RIGHTS TO MANUFACTURE and sell the Swedish "SF" electrical dust precipitator for the first time in this country have been acquired by Buell Engineering Co, New York, from Svenska Flaktfabriken, subsidiary of ASEA (Swedish General Electric Co). President Edstrom (left) of Svenska Flaktfabriken hands the completed contract to Joseph Messenger, vice president of Buell, as John H. Nicholls, treasurer of the American firm, looks on

MANUFACTURING BRIEFS

Washington economists are turning more hopeful about industrial production in 1950. A month or two ago they predicted good business in the first half, a moderate drop later. Now they say the decline, if it comes at all, will be much milder than originally expected. Reasons: The coal and auto strikes have deferred demand for steel and durables, and retail sales—except for certain soft-goods lines—show no signs of slipping.

Whirl-A-Way Motors, Tipp City, Ohio, manufacturer of small electric motors, has moved its sales and financial offices to Dayton, Ohio. Dwight Mills, manager of the Tipp City plant of Whirl-A-Way, is also sales manager of A. O. Smith Corp's electric division, which occupies the same building in Dayton.

The seventh edition of the National Electrical Manufacturers Association's Uniform Accounting Manual for the Electrical Manufacturing Industry has been completed. The new manual covers classification and definition of accounts, accounting for plant and equipment, cost accounting, analysis of cost variances, and financial and operating ratios. Inquiries may be addressed to NEMA Statistical Department, 155 East 44th Street, New York 17, N. Y.

A cathode ray television tube exhaust machine capable of creating a vacuum of 1/750,000,000 of an atmosphere will soon be in service at the Salem, Mass., plant of Sylvania Electric Products, Inc. Designed to handle a 24-in. viewing tube every two minutes, it will cost approximately $100,000.

Reliance Electric Co and Local 715 of the CIO-expelled United Electrical Workers have signed a two-year contract giving 1,450 employees a 3¢-an-hour wage increase retroactive to March 6. The contract also calls for hospital and surgical benefits and improvements in the pension plan set up by the company in 1940.

More than 5,000 employees of Westinghouse Electric Corp, successful participants in a million-dollar suggestion award program, divided $117,354 for their ideas during 1949. More than one out of every three suggestions submitted last year won a cash award.

Sylvania Profits in 1949 Below Those for 1948

Last year was less profitable than 1948 for Sylvania Electric Products, Inc.

Consolidated net income for 1949 was $3,052,840, compared to $3,823,382 in 1948, the company said in its annual report to stockholders. Earnings per share dropped from $2.84 in 1948 to $1.82 last year.

Profits declined despite a rise in sales. Consolidated net sales in 1949 totaled $102,539,866, which was $3,192,115 more than in 1948.

The company described last year as one of "unusual variation in seasonal demand for several Sylvania products, falling prices, and extraordinary expenses." A midyear sales slump came at a time when prices were softening and unusual production expenses were being incurred. This, said the company, was largely responsible for a profit of only $734,782 in the second and third quarters against one of $1,176,815 in the first quarter.

In the fourth quarter profit rose to $1,141,243. This gain was made, despite lower prices, because of lower average unit costs brought by a program for greater manufacturing efficiency.

Picture tubes were the principal factor in the midseason slump and year-end recovery.

•

New Specifications Set for Protective Equipment

Four new specifications for rubber protective equipment used by electrical linemen have been approved as American standards. Covered are insulator hoods, blankets, sleeves, and line hose.

The new standards, which replace those announced in 1945, were developed by a committee of 15 national organizations sponsored by the American Society for Testing Materials and Edison Electric Institute under the procedures of the American Standards Association. The changes were made because rubber and compounding materials of prewar quality are available again.

Minimum limits for tensile strength have been increased for all four items

of equipment: for insulating hoods and line hose from 1,200 psi to 1,600 psi; for insulating blankets from 1,400 psi to 2,500 psi; and for insulating sleeves from 1,800 psi to 2,500 psi. Elongation and set have been changed correspondingly.

•

Westinghouse Revamps Consumer Product Sale

Westinghouse Electric Corp began setting up a series of consumer product factory branches April 1 in the middle Atlantic district.

The new branches will be in Philadelphia, Baltimore, Richmond, Reading, and New York. Their installation will be under the direction of J. F. Myers, formerly middle Atlantic district manager of Westinghouse Electric Supply Corp, who has been named manager of the corporation's branch operations.

The shift separates responsibility for consumer product sales and sales of apparatus and supplies. The branches will use present WESCO facilities. The change does not affect the company's relationship with independent distributors.

SALES ASSIGNMENTS

COMPANY STAFFS

Reynolds Metals Co, General Sales Division, has announced two appointments in the aluminum division. F. F. Tiffany, formerly district manager of the company's Dayton office, has taken over the duties of division manager in the Pittsburgh area, with headquarters in the Pittsburgh field office. T. D. Lewis is now division manager in the Atlanta office. Formerly he was sales representative in the San Francisco area.

Westinghouse Electric Corp, Pittsburgh, has made F. H. Clark sales manager of the Standard Control Division. He has been manager of the small AC control sales section of the division.

Ohio Brass Co, Mansfield, Ohio, has appointed William B. Owens district manager of the territory in the Southeast formerly covered by the late George Willis. His headquarters temporarily will be in Atlanta. Before joining O-B, Owens worked for Link-Belt Co and Georgia Power Co.

REPRESENTATIVES

Eastern Specialty Co, Philadelphia, has appointed A&S Power Equipment, Inc, 31 St. James Ave, Boston 16, as its representative in Maine, New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island.

Edwin L. Wiegand Co, Pittsburgh, has appointed Richards-Conant, 324 Cooper Building, Denver 2, Colo., as representative in the Rocky Mountain states.

NEW ELECTRICAL CONSTRUCTION

A weekly selection of U. S. electrical construction projects announced by private and government utility systems involving more than $70,000. Also listed are major industrial and construction jobs where electrical work is indicated or implied

UTILITIES

Proposed Construction

Arkansas — Arkansas Power & Light Co., Simmons Natl. Bldg., Pine Bluff, transmission lines and substation and imprv. distr. sys. in Forrest City, St. Francis Co., **$370,000.**

California—Bureau Reclamation, Dpt. Interior, Elverta, 230-kilovolt transmission line, Shasta Tracy Nos. 1 and 2, Artois-Madison and Cottonwood, Artois between Cottonwood and Madison, Central Valley Proj., Spec. 2947.

Calif., Ukiah—State Div. Architecture, P. Wks. Bldg., Sacramento, electric distr. and floodlighting Horse Show Arena and Parking Area, 12th District Agricultural Assn. Anson Boyd, Sacramento, state archt.

Colorado — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, one unit substation and spare parts for Oak Creek sub-station, Colorado-Big Thompson Proj. Spec. R7-112 (Region 7). L. N. McClellan, ch. engr.

Colorado — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, circuit breaker, air interrupter switch, disconnecting switches, lightning arresters, potential transformer for Kremmling tap and Oak Creek substations, Colorado-Big Thompson Proj., Spec. R7-116 (Region 7). L. N. McClellan, ch. engr.

Colorado—Holy Cross Electric Assoc., Glenwood Springs, system imprvs., Eagle Co. **$195,000.**

Indiana—Tipmont Rural Electric Membership Corp., Linden, 31.25 mi. rural distr. lines, sys. imprvs. **$455,000.**

Nebraska — Central Nebraska Public Power & Irrigation Dist., Hastings, substation addn., incl. rebuild metal clad switchgear and switchboard control cubicle, install concrete encased conduit ducts, manholes, power cable support structure, erect steel switch and bus sub-station structure and transformer stand; assemble and connect power transformer.

Nebraska — Midwest Electric Membership Corp., Grant, rural distr. lines, Perkins Co. **$657,000.** Flora Eng. Co., 1717 E. Colfax Ave., Denver, Colo., consult. engr.

New Mexico—Lea County Electric Cooperative, Inv., Lovington, furnishing, installing electric equip. for electric generating plant. $75,000. Plans deposit $10. Continental Engineers, Inc., 1310 Avenue Q, Lubbock, Tex., engr.

North Dakota — Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver, Colo., construct Leeds-Rolla 69-kilovolt transmission line, Transmission Div., Missouri River Basin Proj., Spec. No. 2969.

North Dakota—North Central Electric Co-operative, Bottineau, 658 mi. rural distr. lines and sys. imprvs., Bottineau Co. **$970,000.** Ulteig Eng. Corp., 1114½ Front St., Fargo, consult. engrs.

Okla., Brown—Southwestern Power Admin., Dpt. Interior, c/o Floyd E. Conway in Aircraft Assembly Plant No. 3, Tulsa, 138 kv switching station. $100,000. Plans deposit $15.

South Carolina — Blue Ridge Electric Co-operative, Pickens, 100 mi. rural distr. lines and sys. imprvs., Oconee Co. **$320,000.**

Low Bidders & Contracts Awarded

Colorado — Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Mar. 22 clearing right-of-way and constr. 50 mi. Green Mountain (Kremmling Tap), Oak Creek transmission line, Colorado-Big Thompson Proj., Spec. 2916, from Smith Constr. Co., 1000 44th Ave. N., Nashville, Tenn., **$415,225.**

Iowa—Iowa-Illinois Gas & Electric Co., Iowa City, rural distr. lines, substations, service imprvs., Iowa City. Owner builds, **$480,000.**

Mich. Dearborn—Ford Motor Co., 3000 Schaefer Rd., 2 and 3 story, bsmnt., 427 x 466 ft., irregular shaped, rein.-con., structural steel, masonry dynamometer bldg., to Darin & Armstrong, Inc., 2041 Fenkell Ave., Detroit, Est. Approx. **$5,000,000.** Bids 2/27, awarded 3/29.

Minn., Elk River—Rural Co-operative Power Assn., Elk River, Mar. 17, electric installations for power plant and substation, Elk River, from Kehne Electric Co., 733 Raymond Ave., St. Paul, **$179,927.**

Tex., Victoria—Central Power & Light Co., 120 N. Chaparral St., Corpus Christi, electric distr. lines, force account, **$225,000.**

INDUSTRIAL, COMMERCIAL & PUBLIC BUILDINGS

Proposed Construction

Calif., Los Angeles—Cedars of Lebanon Hospital, 4833 Fountain Ave., Los Angeles, plan by Skidmore, Owings & Merrill, 1 Montgomery St., San Francisco, steel, frame, concrete maternity and pediatric pavilion bldg. **$2,000,000.**

Fla., Bartow—International Minerals & Chemical Corp., Bartown, plant expansion, incl. headquarters office, multiple phosphate chemical plant, sulphuric acid plant, machine shop, warehouse, service center, analytical laboratory. **$4,000,000.**

Ia., Des Moines—City Memorial Auditorium Comn., City Hall, voted **$3,500,000** bonds, Mar. 27, veterans memorial auditorium, **$5,250,000,** Des Moines Architects Comn., c/o Tinley, Higgins & Ligher, 526 Liberty Bldg., Des Moines, archts.

Mass., Taunton — Commonwealth of Mass., Dpt. Mental Health, 15 Ashburton Pl., Boston, hospital addns., alterations, incl. Proposal A, infirmary, male dormitories, connecting tunnels; Proposal B, female dormitories, connecting tunnels; Proposal C, cafeteria; Proposal D, boiler plant and tunnel to infirmary; Proposal E, roads and paved area; Proposal F, services and utilities; Proposal G, all work above, $8,700,000. Leland & Larsen, 814 Statler Bldg., Boston, archts. R. D. Kimball Co., 66 Beacon St., Boston, engrs.

O., Bucyrus — Timken Roller Bearing Co., 1835 Dueber Ave., Canton, 2 plants, 53,600 sq. ft. floor space cup plant and 63,600 sq. ft. cone plant, on 84 acre tract near Route 30, east of here. **$4,000,000.**

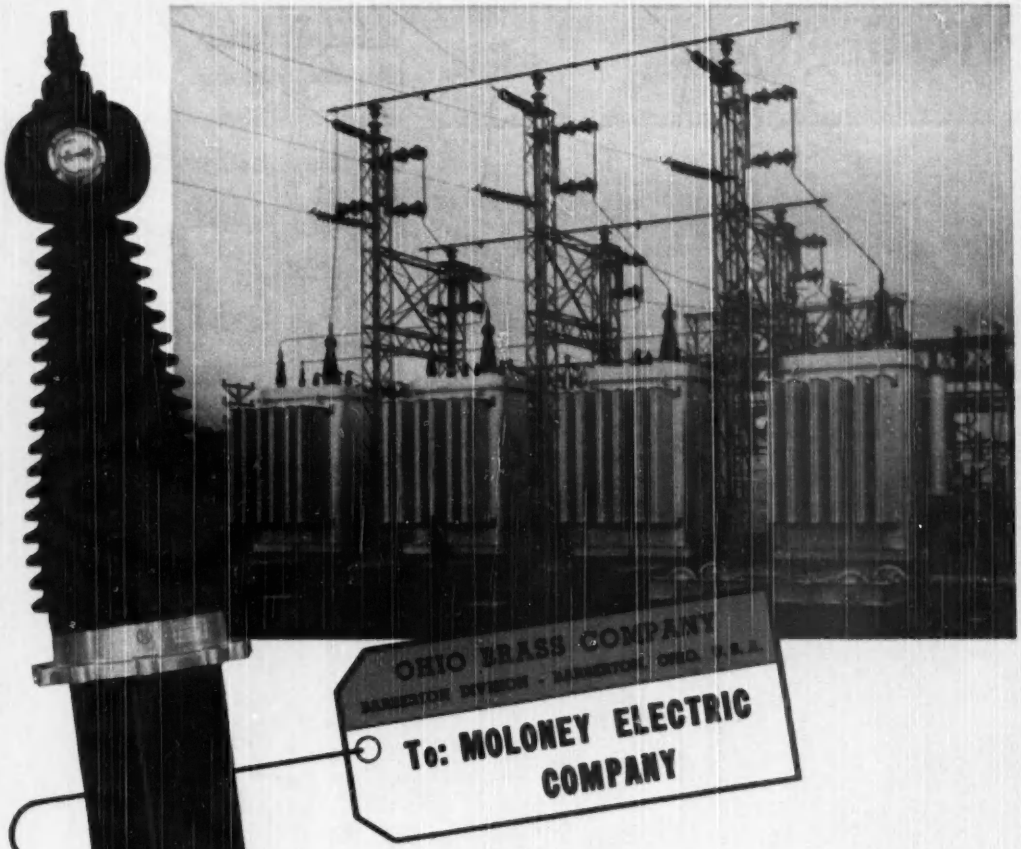
Utah, Brigham City — Bureau Indian Affairs, Dpt. Interior, Interior Bldg., 19 and C Sts. N. W., Wash. 25, D. C., 1,000 seat auditorium, 1,500 seat gymnasium, two 18-room schools; 4 apartments and one residence at Indian School. $2,000,000. A. B. Paulson, Continental Bank Bldg., Salt Lake City, archt.

Low Bidders & Contracts Awarded

Kan., Salina—Bd. Educ., Mar. 3/24, general contract, high school, from Geo. E. Bauman, Nevada, Mo., and Val Borden, Salina, **$1,433,200.**

Mo., Kansas City—Lewis E. Kitchen, 1014 Baltimore Ave., Zone 6, 3 apartments, Jefferson St., 8-10 Sts.; 1 apartment, Jefferson St., 10-11 Sts., 1 apartment, Jefferson & 10 Sts., to Wuin-Senter Constr. Co., Railway Exchange Bldg., Kansas City 6, Mo. Approx **$5,000,000.** Jesse Leuck, 6225 Brookside Blvd., Zone 2, archt.

O., Toledo—Hampshire Heights, Inc., c/o Farber, Cochran, Green & Shrader, Spitzer Bldg., 40 two-story multiple apartments, Middlesex Dr. off Central Ave., to Ruihley & Kuerten, Inc., 316 Pinewood Ave. Approx. **$3,100,000.**



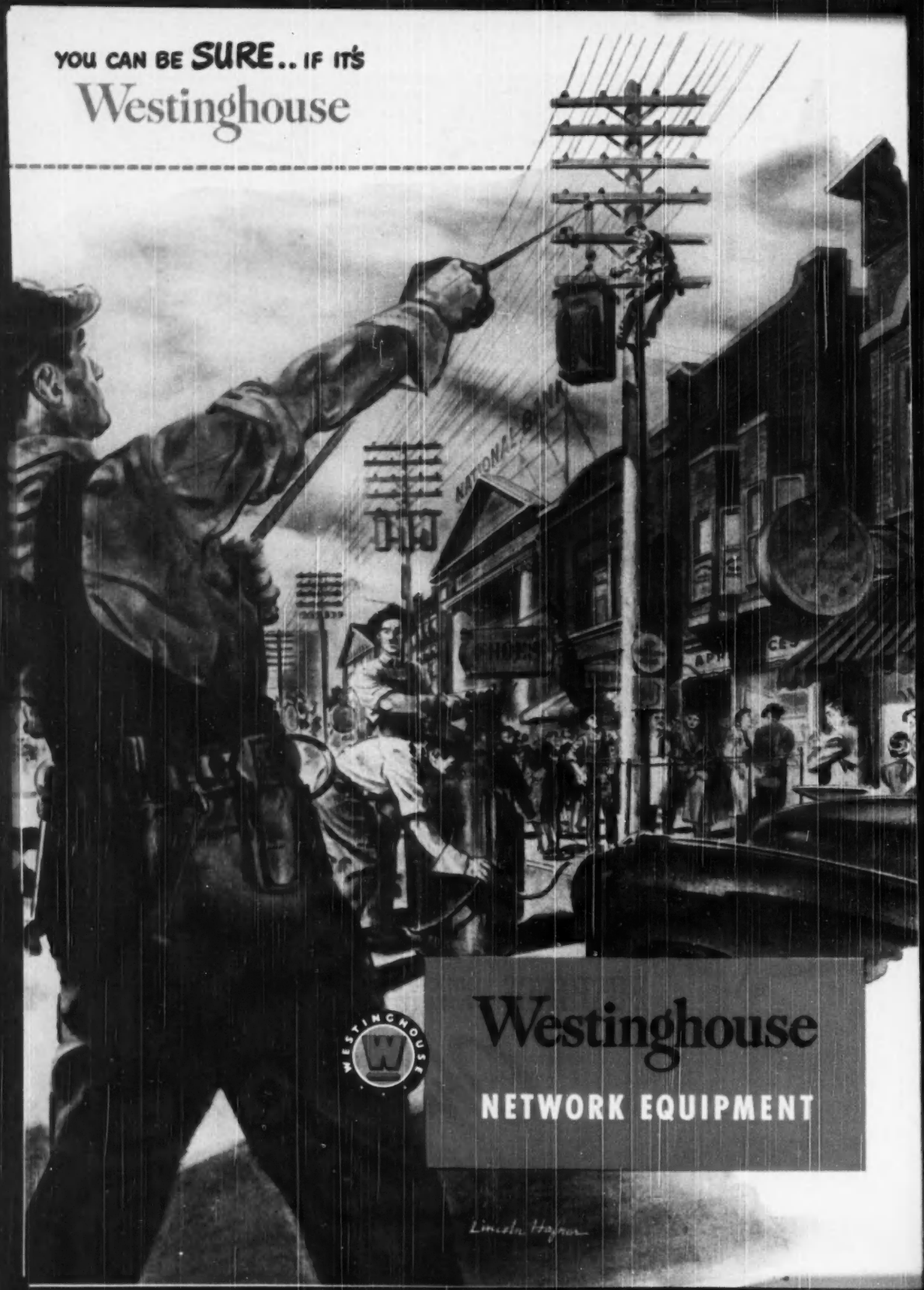
Installed in a large western substation, these four Moloney autotransformers are each rated at 15,000 kva, and step down the transmission voltage of 112,500 to 60,000. Each has a tertiary winding of 6,667-kva capacity at 10,500 volts for operation of a synchronous condenser. The inert gas pressure system for oil preservation contains three-stage pressure regulating equipment. Tanks are designed to withstand full vacuum without oil. And like many other Moloney transformers, these are equipped with . . .

BUSHINGS ONE OF THE FINEST COMPONENTS OF *ANY* TRANSFORMER . . . . . .

3064-H

Ohio Brass

MANSFIELD • OHIO


YOU CAN BE SURE.. IF IT'S
Westinghouse
NATIONAL BANK
Westinghouse
NETWORK EQUIPMENT
Lincoln Hafner

When the Poles Get "Top-Heavy"..

SECONDARY NETWORKS PAY!

As you plan system improvements, examine the smaller load-density areas . . . where the load is growing *fast* . . . where demand necessitates frequent additions to distribution facilities. Then ask yourself this question:

Will the maintenance of satisfactory service in these areas eventually lead to an expensive, over-congested condition . . . to "top-heavy" poles?

If the answer is "yes" . . . *it's time for a secondary network!*

The high quality of service provided by the secondary network system is just as essential to the electrical growth of the smaller commercial district as it is to the sprawling business sections of the big city. What's more, it gives you the flexibility to accommodate extensions, load shifts and future growth *economically*. It permits healthy cuts in operating and maintenance expense that add up to substantial, long-term savings . . . that spell *economy* in the final accounting.

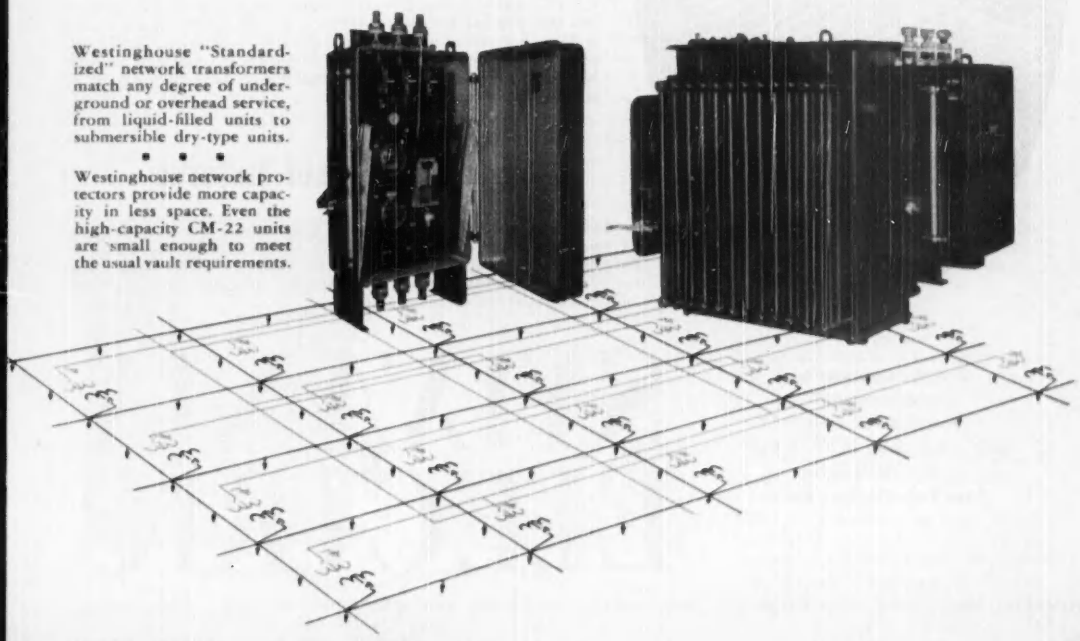
A quarter-century ago, Westinghouse introduced the first three-phase, automatic network protector. Continuous pioneering in this field has led to such present-day developments as the first submersible, dry-type transformers. This long experience . . . our competent facilities, engineers and calculating boards . . . are available to help you with *your* network planning. Call your nearest Westinghouse office or write for Booklet B-4002, "A-C Secondary Network Systems".

Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. J-97145

Westinghouse "Standardized" network transformers match any degree of underground or overhead service, from liquid-filled units to submersible dry-type units.

■ ■ ■

Westinghouse network protectors provide more capacity in less space. Even the high-capacity CM-22 units are small enough to meet the usual vault requirements.



New SYLVANIA fixtures are ready to put 8-foot lamps to work EVERYWHERE!

● Industries far and wide have been waiting for this new industrial fixture that uses an 8-foot chassis equipped with two 8-foot *instant start* 75-watt T-12 single pin lamps. Now long lines of light are easy . . . and, as with all Sylvania industrial fixtures, this unit is *weatherized* for extra-long life!

● And, for all stores, offices, schools, there's the new 8-foot *instant start* unit beautifully louvered to give virtually glarefree illumination. High quality 96" Slimline Lamps make this fixture possible . . . and the resulting unbroken sweeps of light that combine beauty with efficiency.

A higher light intensity unit styled to match the CL-296 is the CL-496—carrying four 75-watt Slimline Lamps. Typical of Sylvania's full line, this fixture comes complete with lamps, ballasts and lampholders. For ease of relamping and cleaning, exclusive spring latches release entire reflector and louver assembly. All the features that have made Sylvania fixtures outstanding have been incorporated in this new line of *instant start* units.

Companion 4-foot fixtures

To further help complete long lines of continuous row installations, Sylvania has a complementary group of industrial and commercial fixtures that are also instant starting . . . are styled to match their 8-foot companions . . . have the features that encourage big, complete installations for leading industrial and commercial users.

For full information about Sylvania's complete, new line write Advertising Dept. L-2504 500 Fifth Avenue New York 18, New York

SYLVANIA ELECTRIC

FLUORESCENT LAMPS, FIXTURES, WIRING DEVICES; SIGN TUBING; LIGHT BULBS; PHOTOLAMPS; RADIO TUBES; CATHODE RAY TUBES; ELECTRONIC DEVICES

NEWS ABOUT PEOPLE

C. P. Crane Heads Baltimore Utility; Wolfe, Penniman, Penn Named VP's

(See Front Cover)

Charles P. Crane has been elected president of Consolidated Gas, Electric Light & Power Co of Baltimore. Crane, former executive vice president, succeeds William Schmidt, Jr, who was reelected chairman of the board but declined reelection to the presidency.

J. Theodore Wolfe has been elected executive vice president of the firm, and Austin E. Penn and Abbott L. Penniman, Jr, have been named vice presidents.

Crane, a native of Annapolis, has been associated with Consolidated since 1910 when he was secretary to Charles M. Cohn, vice president, who later became president and chairman of the utility. Nine years later Crane became Cohn's assistant. In 1938 he was elected vice president and in 1946 executive vice president and a member of the board of directors and the executive committee.

Crane is past president and director of the Maryland Utilities Association.

Wolfe started working for Consolidated in 1932 in the executive offices and six years later was appointed assistant to the executive vice president. In 1942 he was elected assistant vice president and in 1946 he became a vice president.

J. THEODORE WOLFE

Penniman joined Consolidated in 1911, first serving as a draftsman, then as a testman, and later as an inspector in the electric division. From 1914 to 1937 he was superintendent of steam electric generating stations in charge of plant operations, maintenance programs, and economic studies in connection with old and new equipment. In 1937 he became general superintendent of electric operations and had supervision over design construction, operation, and maintenance of all electric property of the company.

A fellow of the American Institute of Electrical Engineers and the American Society of Mechanical Engineers, Penniman is director at large of the latter organization and serves on several of its committees. During the fiscal periods between 1946 and 1948, he was chairman of the Committee on Power Generation, Association of Edison Illuminating Companies, and is currently serving as chairman of its stack emission subcommittee.

Penn, a certified public accountant and a lawyer, has been employed by Consolidated since 1920. He served as assistant secretary and assistant treasurer from 1939 to 1946. In 1946 he became secretary and assistant treasurer.

ABBOTT L. PENNIMAN, JR.

AUSTIN E. PENN

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Fairbanks Morse Picks 2 New Vice Presidents

Two new vice presidents have been elected by directors of Fairbanks, Morse & Co, Chicago. They are O. O. Lewis, vice president in charge of sales, and F. J. Heaslip, vice president in charge of purchases and traffic.

Lewis joined the organization in 1908 as a clerk. For a number of years he was a sales engineer in the Indiana, Ohio, and Michigan territories. From 1932 to 1943 he managed the company's Atlanta branch house. In 1943 he was named assistant sales manager and five years later sales manager.

Heaslip joined the company in 1927 as a buyer in the purchasing department. He was made purchasing agent in 1935 and director of purchases in 1942. For 11 years he was secretary of the Chicago Association of Purchasing Agents, and he has been awarded the National Association of Purchasing Agents' Shipman Medal for outstanding contribution to the purchasing function of indusry. For the past few years he has served the Bureau of Federal Supply in Washington on the strategic materials group.

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Paul E. Feistner has been named superintendent of distribution by Omaha Public Power District. He fills a vacancy created by the death of Jess Hart. Feistner has been with the PPD and its predecessor 22 years. He started as a lineman in the ground department.

David E. Davidson has been elected vice president for sales of Link-Belt Co, Chicago. **Eugene P. Berg** will succeed him as general manager of the com-

pany's Pershing Road plant in Chicago. Davidson joined the company's Caldwell plant, Chicago, in 1924 in the shop. He has served as draftsman, sales engineer at the Atlanta plant, district sales engineer at Detroit, and district sales manager at Indianapolis.

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Finley Succeeds Morris as President of APPA

S. R. Finley, general superintendent of the Electric Power Board, Chattanooga, Tenn., was elected president of the American Public Power Association

S. R. FINLEY

at its recent convention in Washington. He succeeds Samuel B. Morris, general manager and chief engineer of the Department of Water & Power of the City of Los Angeles.

J. Frank Ward, manager, Tacoma City Light, was elected vice president. Reelected were Ralph J. Duvall, manager, Board of Public Utilities, Kansas City, Kan., executive vice president; C. E. Pray, manager of collections and accounts, Board of Public Utilities, Kansas City, Kan., treasurer; Carlton Nau, Washington, D. C., general manager; and Northcutt Ely, Washington, D. C., general counsel.

Finley was elected first president of the Tennessee Valley Public Power Association in 1947. He left the Ohio Farm Bureau, where he was chief engineer of the rural electrification program, in 1937 to become chief engineer of the Chattanooga municipal plant.

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Frank W. Cramer, has joined the Elliott Co, Jeannette, Pa., as a consulting engineer to assist in the design, application, installation, maintenance, and sale of electrical apparatus to the steel and allied industries. Before going to Elliott, Cramer was chief engineer of Carnegie-Illinois Steel Corp. Earlier he worked for Bethlehem Steel Co as assistant electrical superintendent and Republic Steel Co as chief electrical engineer. He is a past president of the Association of Iron and Steel Engineers.

Clayton S. Cronkright, industrial representative, sales department, general office, Public Service Electric & Gas Co, Newark, has been presented the Thomas N. McCarter Electric Award. The medal is given annually to the electric department employee who has contributed most during the year toward the efficiency and progress of the department. Cronkright started with Public Service in 1926 in the general office sales department. Later he served as Newark industrial fuel representative and division industrial fuel representative.

Harold P. Richmond has been appointed general manager of Millville (N. J.) Electric Light Co. He joined the organization in 1947 and has been superintendent of operations.

OBITUARY

Nathan Birge

Nathan R. Birge, 72, retired vice president of General Electric Co, who had supervised operations of affiliated manufacturing companies, died at his home in Schenectady, N. Y., April 8, after a brief illness. He retired in 1944 after more than 44 years with GE.

Birge's first GE assignment was with the street lighting division at the Lynn, Mass., River Works. In 1906 he was named manager of arc lamp sales and in 1923 assistant manager of the central station department.

In 1924 Birge was assigned to the staff of Pres Gerard Swope to assist in the supervision of the affiliated manufacturers. He was named assistant to the president in 1927, a member of the company's advisory committee in 1936, and a vice president in 1937.

Walter E. Poor

Walter E. Poor, 64, chairman of the board of Sylvania Electric Products, Inc, since 1946, died April 4 in New York City. He was made executive vice president of Sylvania in 1940 and became president in 1943.

A native of Salem, Mass., Poor began his career as electrical engineer for the Boston Elevated Railway. In 1911 he joined his brothers in the manufacture of electric lamps at Hygrade Lamp Co, Danvers, predecessor of Sylvania. As electrical engineer for Hygrade, Poor took over the development and production of tungsten lamps. He later became

WALTER E. POOR

vice president and general manager of the firm. His first contribution to the lighting industry was the development of a low-wattage sign lamp.

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Byron E. White

Byron E. White, 71, a pioneer in the development of hydroelectric power in central New York, died April 2 at his home in Barneveld, N. Y.

At the time of his retirement in 1945 White was supervisor of rural line extension for the then Central New York Power Corp. Earlier he had been resident engineer in charge of the system's plant construction at Trenton Falls.

White joined Utica (N. Y.) Gas & Electric Co in 1904 as a civil engineer. For 12 years he was assistant supervisor of the rate and statistical department of Central New York Power at Syracuse. In 1937 he returned to Utica to become supervisor of rural extensions.

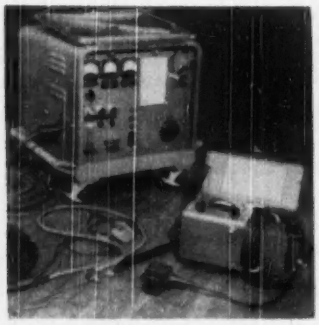
First president of the Mohawk Valley Engineers' Club, White was a member of the American Engineering Council and the author of the chapter on wood stage pipe in the *Hydroelectric Handbook*.

•

Samuel Scovil, 92, president of Cleveland Electric Illuminating Co from 1914 to 1918, died March 29 in Cleveland Heights. He served as vice president and treasurer of the utility from 1894 to 1914.

Alvin Augustus Miller, 76, died recently in Seattle after a long illness. A life member of the American Institute of Electrical Engineers, he was with Westinghouse Electric Corp from 1898 to 1939.

NEW EQUIPMENT



Cable Fault Locator

LOCATION of faults on lead-covered cable installed in ducts is the primary purpose of a new impulse cable fault locator and dc proof tester. However, it also has applications on aerial and buried cable.

The locator is comprised of a high-voltage dc impulse transmitter with pickup coil and pointer-indicating detector. In operation, the set is said to be essentially independent of the type of fault or its apparent resistance, and depends only on the impulse voltage required to break down the fault.

Model 2-2 fault locator (illustrated) is rated up to 20 kv with a discharge capacitance of 2.5 μf, for use on cable up to 15 kv and higher. The set requires about 500 w, 115 v, for high voltage dc equipment proof testing.

Similar sets of higher and lower kv and μf ratings are available. Bulletin 65-9 contains complete information.

James G. Biddle Co, 1316 Arch St, Philadelphia 7, Pa.

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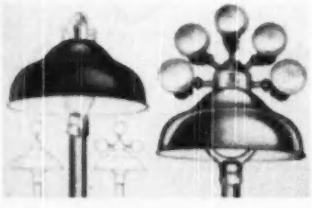

Column Light

FOR USE on parkways, at gasoline stations, parking places, and playgrounds is a weatherproof column light. This new area light has a steel porcelain-enameled reflector, 20½ in. diam, with an overhanging skirt to reduce glare. Wiring is fully enclosed and supplementary spots or floods can be added as shown in the photograph. The R1 column light is designed for base-up burning of 300 and 500-w standard line lamps or for bi-post lamps in 500, 750, and 1,000-w sizes.

Stone Manufacturing Co, 489 Henry St, Elizabeth, N. J.

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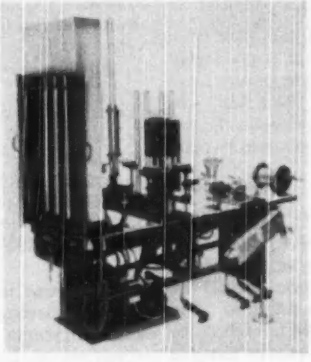
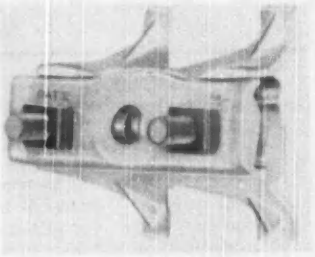


F Tube Making Unit

ALL OPERATIONS required in construction of fluorescent coated hot cathode lamps are reportedly performed with a tube-making unit of small output rate. It can handle fluorescent tubes 1 in. or 1½ in. in diam, lengths from 12 to 60 in., and can be adapted for other sizes. Production of the machine is 50-75 tubes per 8-hr day, depending on versatility of the operators.

Assembly consists of a steel table covered with asbestos upon which machinery and tools are installed. Such units consist of glass cutter, flare maker, stem maker and annealer, spot welder, sealer, exhaust oven with mechanical vacuum and diffusion pumps, single head baser and soldering iron. In addition, there are pressure reading gages, argon filling arrangements, tipping torches and ribbon burners. The unit is wired and piped for gas (pressure, 15 in. water) and air (3 psi). Not shown in illustration is a gas and air booster for proper operation of the burners.

Eisler Engineering Co, Inc, 750 S. 13th St, Newark, N. J.



Cable Suspension Clamp

TO PLACE the messenger below instead of above the through bolt, the Type PA 192A aerial cable suspension clamp need only be reversed. Clamp consists of two castings and two oval neck track bolts. Body and plate castings are of malleable iron, and they and the bolts are hot dip galvanized. Minimum ultimate tensile strength of the bolts is reported at 70,000 psi. Messenger range is ⅞ to ½ in. diam.

Malleable Iron Fittings Co, Pole Hardware Dept, Branford, Conn.

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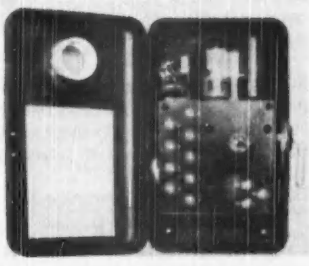


Photoelectric Control

DESIGNED FOR general industrial and machinery applications, Series 20 photoelectric control may be used in motor or conveyor controls, counting, or short-range signal systems. To make it useful in safety applications, it is supplied with forward and reverse circuits so that tube replacement is indicated by either an energized or de-energized relay.

Operating range is 10 ft with L30 or 40AD1 light source and 20 ft with L60 source. The relay operates in 0.05 sec. Supply is 115 and 230 v, 50-60 c.

Photoswitch, Inc, 77 Broadway, Cambridge 42, Mass.

ELECTRICAL BUSINESS OUTLOOK

Business plans for new plant and equipment are being revised upward. That's the big news in the 1950 capital expenditures survey of the Department of Commerce. For the first quarter, capital spending was down only 7.5% instead of 14%, as anticipated by an earlier survey. For 1950 as a whole, the drop is now indicated as 11% compared with 13% shown by McGraw-Hill's earlier sampling.

The Commerce Department's figures jibe with what can be observed in the industries that make industrial machinery. Both activity and new orders have been rising in the machinery field. And that's unusual for this season of the year. The railroads and metal-working industries particularly have stepped up their orders for new equipment.

The result has been to add momentum to the boom in general business. Steel production, for example, is now higher than at any time in over a year. Most economists originally figured the boom would be slowed down by lagging capital expenditures. But, on a seasonally adjusted basis, capital spending for the first half year will evidently be higher than in the last half of 1949.

All this helps utilities in two ways: (1) At present the steel and machinery industries are taking a lot of power. (2) Later on, the new capital equipment will increase power needs in other industries.

The biggest upward revision has been in the plans of manufacturing companies. Railroads and commercial businesses still plan to spend considerably less than last year. However, good business is evidently encouraging manufacturers to add new facilities which they had previously postponed.

The McGraw-Hill survey, made late in 1949, found manufacturers planning to spend 13% less on new plant and equipment in 1950 than in '49. But the Commerce survey, made in February, shows only a 7% decline. This is a more important point for utilities than the overall results of the survey, because manufacturing plants are the biggest utility customers.

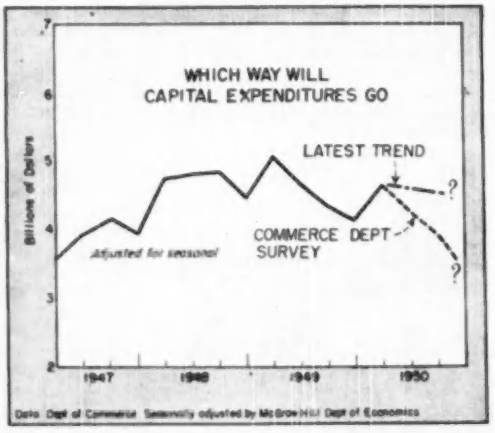
A big question remains, however, about the second half-year. Business plans reported to the Commerce Department still point to a sharp drop then in capital spending. Chances are most businesses haven't yet revised budgets for later in the year, as they have for the early months. If later plans are boosted, the threatened drop will not take place. But if the drop does come, it will have double force because of the high level first half.

Here is where good business in the manufacturing industries counts heavily. Manufacturers' plans, as evidenced by recent revisions, are usually quite flexible. With the boom rolling on, there's every chance these companies will add more plant and equipment than they originally figured on. And manufacturing plants account for the biggest single share of capital expenditures.

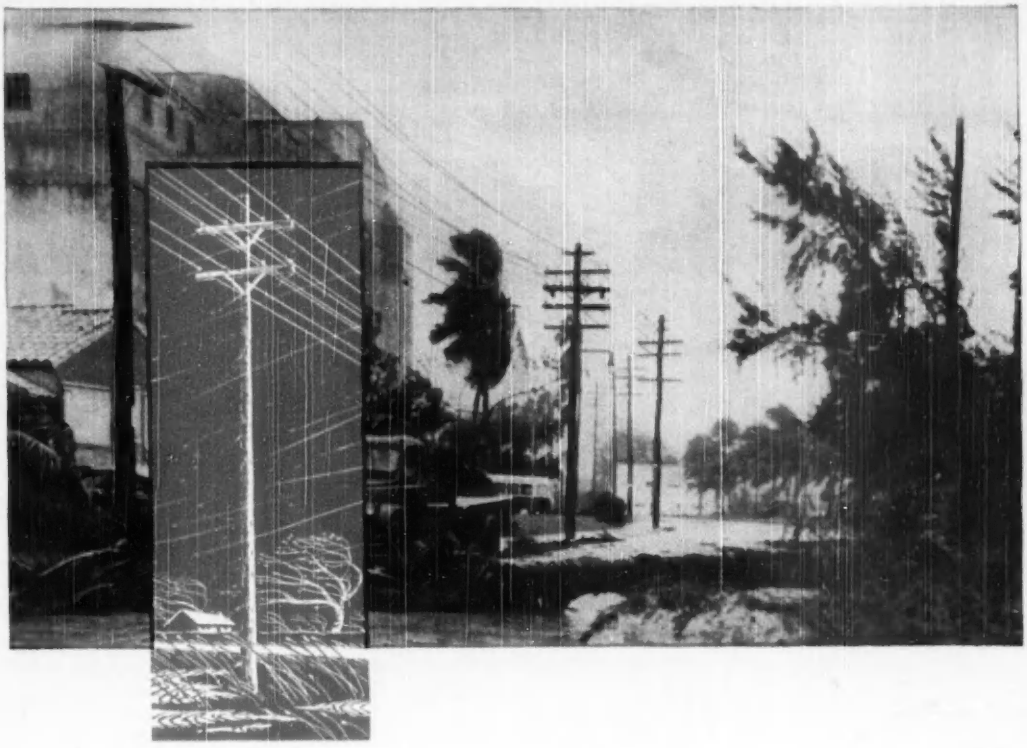
The real question is whether new orders by manufacturers can rise enough to offset reductions by other lines, including utilities. According to the Commerce Department survey, new plant investment by commercial businesses and by the electric and gas utilities will be considerably lower during the second half year.

It's not clear why utility investment, in particular, should drop off so sharply. For the year as a whole, it will be only slightly below last year, according to both the Commerce Department and ELECTRICAL WORLD'S own survey. And new plant expenditures for the first half year will actually top the early months of 1949.

Two reasons may account for the indicated drop: (1) Gas companies are reported to be cutting back their programs. (2) Electric utilities have begun to catch up in their program for building generating stations although other apparatus will continue to be needed in large quantities. But, like last year, power companies may spend more than anticipated.



NEW PLANT and equipment expenditures rose sharply in the first quarter, the Commerce Department's latest survey indicates. This may mean a general upward revision in business plans for 1950 as the big decline for the second half-year may not take place



Service crew costs running you ragged?

DURALINE can take it when the weather gets rough

It's when that pleasant breeze whips into a screaming gale—or when that cloudy sky unloads a torrential downpour—that power lines fail.

And service crews cost you money.

Duraline* URC Weatherproof, with its continuous interlocked fibrous sheath, thoroughly impregnated with URC saturants and finishers, is practical insurance against trouble caused by weather, time, or foreign objects across the line.

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*Reg. U. S. Pat. Off.

The right cable for the job **ANACONDA®**
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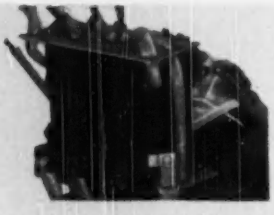
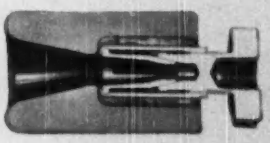
THESE *ACP** FEATURES MEAN SAVINGS TO YOU!



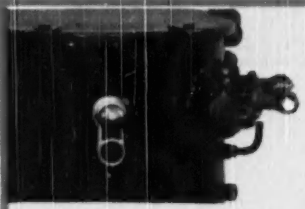
1 LOW VOLTAGE BREAKER, internally mounted, protects against all secondary overloads and short circuits.

2 LIGHTNING ARRESTERS, either expulsion or valve type, assure complete high voltage surge protection.



3 CHUCK TYPE CONNECTORS eliminate all exposed live parts. To make connection, simply insert lead, rotate housing.

4 TANK DISCHARGE GAP provides path for surges on units where ungrounded tank practice is used.



5 LOW VOLTAGE NEUTRAL GAP provides surge protection for LV winding. Can easily be replaced with ground strap.

6 SIGNAL LIGHT, HOOKSTICK RESET and emergency service restoration lever are mounted in one compact assembly.

Simplified Installation . . . Fewer Outages . . . Visual Load Checks Mean Money Saved on ACP Transformers with Premium Protection

ACP TRANSFORMERS PAY THEIR OWN WAY from the moment installation starts. They're economical to install because transformer and protective components are completely packaged in one easy-to-install unit. No assembling or adjusting in the field.

FEWER OUTAGES, INCREASED CAPACITY

Once they're up, ACP transformers stay on the line longer than conventional units. Secondary breaker, actuated by oil temperature or excess current, is closely coordinated with thermal characteristics of the transformer it protects. Result: short time overload transformer capacity is fully utilized . . . the number of outages reduced.

KEEP TAB ON SYSTEM LOADING

You also eliminate expensive load checks requiring time and special equipment. On ACP transformers 5 kva and up, signal light does the job for you — provides simple, continuous check.

Want more details? NEW ACP transformer bulletin 61B7309A is off the press! Call your nearby A-C district office for your copy.

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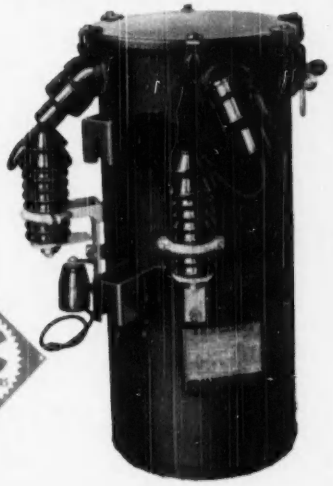
MILWAUKEE, WIS



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